

COMMITTEE WORKSHOP
BEFORE THE
CALIFORNIA ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

In the Matter of:)
)
Informational Proceeding and)
Preparation of the 2005 Integrated) Docket No.
Energy Policy Report) 04-IEP-1A
)
Re: Air Quality and Opportunities)
to Expand Use of Alternative)
Transportation Fuels)
_____)

CALIFORNIA ENERGY COMMISSION
HEARING ROOM A
1516 NINTH STREET
SACRAMENTO, CALIFORNIA

FRIDAY, JULY 8, 2005

9:04 A.M.

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COMMISSIONERS PRESENT

John Geesman, Presiding Member

James Boyd, Associate Member

Jackalyne Pfannenstiel, Commissioner

ADVISORS PRESENT

Melissa Jones

Michael Smith

STAFF and CONTRACTORS PRESENT

Dan Fong

Pat Perez

CALIFORNIA AIR RESOURCES BOARD

Mike Scheible, Deputy Executive Officer

Dean Simeroth, ARB Staff

ALSO PRESENT

Joe Norbeck
Center for Energy Research and Technology

Jay McKeeman
California Independent Oil Marketers Association

Bob Walker
Swan Biomass

Gary Herwick
National Ethanol Vehicle Coalition

Tom Koehler
Pacific Ethanol/California Renewable Fuels
Partnership

ALSO PRESENT

Richard V. Eastman
Phoenix BioIndustries

Mike Jackson
TIAX

Mike Eaves
National Gas Vehicle Coalition

Jon Van Bogart
Delta Liquid Energy

Gary Whitten
Air Pollution Consultant

Jim Stewart
BioEnergy Producers Association (via
teleconference)

Randal A. Friedman
California Government Affairs
Navy Region Southwest

Joe Sparano
Western States Petroleum Association

Dennis Schuetzle
TSS Consultants
Renewable Energy Institute

John Boesel
Calstart

Henry Hogo
South Coast Air Quality Management District

Dave Modisette
California Electric Transportation Coalition

Luke Tonachel
Natural Resources Defense Council

Neil Koehler
California Renewable Fuels Partnership

Allan Dusault
Sustainable Conservation

ALSO PRESENT

Steve Shaffer
California Department of Food and Agriculture

J. Steve Welstand
Chevron Texaco Products Company

Arthur J. Bullard
Biosphere Environmental Energy

Don Anair
Union of Concerned Scientists

Samuel L. Altshuler
Pacific Gas and Electric Company

Reed M. Benet
University of California Davis

Anna Halpern-Lande
Cyrnel LLC
Environmental Entrepreneurs

Rick Margolin
Energy Independence Now

Yolanda Wong, Commissioner
City of Berkeley (via teleconference)

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P R O C E E D I N G S

9:04 a.m.

PRESIDING MEMBER GEESMAN: We've got a busy agenda today, and I know a number of people on the telephone and internet.

This is day 43 of the California Energy Commission's Integrated Energy Policy Report workshop process.

I'm John Geesman, the Presiding Member of the Energy Commission's Integrated Energy Policy Report Committee. To my left is Commissioner Jim Boyd, the Associate Member of the Committee.

To our far left, Commissioner Jackalyne Pfannenstiel who, along with Commissioner Boyd, make up the Energy Commission's Transportation Fuels Committee.

Next to Commissioner Pfannenstiel is Mike Smith, who is Commissioner Boyd's Staff Advisor. Mike Scheible, who is joining us from the Air Resources Board today. And to my right, Melissa Jones, my Staff Advisor.

I think the notice materials and questions posed pretty much sum up the purpose of today's workshop. I want to be real clear,

1 though, at the outset that nothing said here today
2 or discussed is intended to intrude or should
3 intrude on the Air Resources Board's legal
4 discretion as to how to best respond to EPA's
5 recent decision regarding the oxygenate waiver.

6 I do want to make certain, though, that
7 we get a better sense of the interaction of
8 science and the law in this area. I think that
9 most of the people here are aware, the Legislature
10 passed several years ago AB-2076. And under that
11 authority the Energy Commission and the Air
12 Resources Board have collaborated on developing
13 strategies to reduce our state's petroleum
14 dependence.

15 The Air Resources Board is appropriately
16 focused on the improvement of air quality
17 conditions in California. And that's a goal that
18 the Energy Commission shares. We also, at the
19 Energy Commission, have a broader mandate in
20 exploring and promoting the diversification of our
21 transportation fuel sector.

22 So I look forward to this discussion
23 today. Commissioner Boyd, do you have any opening
24 remarks?

25 COMMISSIONER BOYD: Yes, thank you.

1 Thank you to everybody for attending this
2 workshop. If it's your first, I welcome you. If
3 it's your 43rd, I empathize with you.

4 I want to thank Deputy Executive Officer
5 Scheible, Mike Scheible, my old friend, for
6 joining us here today. And I just want to
7 elaborate a little bit on what Commissioner
8 Geesman said about the relationship and
9 partnership between this Commission and the Air
10 Resources Board. It goes back decades. There
11 have been decades of cooperation and close work
12 between these two agencies.

13 Energy and air quality have been
14 inextricably combined for years and years and
15 years. And each agency has traded off lead
16 responsibility on occasion for the issue depending
17 on whether the driver that day is the perpetual
18 air quality problem of California or whether the
19 driver happens to be an energy crisis, a
20 transportation fuel crisis of one form or another.

21 We've had a lot of those down through
22 the years. Personally some of us, I for one,
23 think we're going through one right now. And we
24 still have our air quality problems, so I think we
25 have a joint and equal concern and responsibility

1 to pursue the kinds of questions and issues that
2 are being discussed today.

3 I think the citizens of the state have
4 always endorsed and embraced air quality as a high
5 priority in the protection of their public health.
6 And I certainly know the citizens of the state
7 right now are quite concerned about the economic
8 impact on them and the economy of the cost of
9 transporting ourselves around these days.

10 And if there ever was another good
11 reason for why we need energy diversification,
12 energy security -- and security has a different
13 meaning to it these days, or dual meaning --
14 energy security through energy diversity, economic
15 security through energy diversity, it should be
16 patently clear today that that's a need.

17 It's been pretty well proven that the
18 mono transportation fuel approach we've taken no
19 longer can supply adequate fuels to meet the
20 needs, the demands of the people of the state.
21 And while we work to get efficiency, job one, into
22 the energy use in this area, unfortunately that's
23 not something that's delegated solely to the
24 nation-state of California, i.e., that means
25 vehicle efficiency, that means CAFE. And once

1 again the Congress has refused to step up to the
2 plate and act on that point.

3 So California has to pursue what it can,
4 which means increasing the diversification and
5 supply of alternative fuels. And to do that in a
6 way that has no negative, and hopefully positive
7 impacts on our environment and air quality.

8 So, a polyfuel strategy appears to be
9 the appropriate energy for the State of
10 California. And I think that's what we're here to
11 more or less talk about today. So I really look
12 forward to pursuing this subject.

13 PRESIDING MEMBER GEESMAN: Commissioner
14 Pfannenstiel? Mike, anything to say?

15 DEPUTY EXECUTIVE OFFICER SCHEIBLE: Just
16 a couple of comments. One, thank you to the
17 Energy Commission. This joint workshop is just an
18 ongoing symbol of ARB and the Energy Commission's
19 long operating and cooperation.

20 Fuels and energy and environmental
21 quality are completely linked in California. And
22 we can't be successful in one and meet the needs
23 in the other without working closely together.
24 I'm looking forward to today and learning from all
25 of the participants, and am happy to be here.

1 PRESIDING MEMBER GEESMAN: Okay, Dan,
2 it's all yours.

3 MR. FONG: Thank you. I'm Dan Fong with
4 the Energy Commission Staff. Before we jump into
5 the first presentation for today's proceeding, Pat
6 Perez would like to touch upon a few
7 administrative items.

8 MR. PEREZ: Thank you, Dan, and good
9 morning, Commissioners and Mr. Scheible. My name
10 is Pat Perez; I'm Manager of the transportation
11 fuels office.

12 A few administrative things. We have a
13 very big agenda today with quite a few speakers.
14 I do want to make one addition under public
15 presentations, Dennis Schuetzle from the Renewable
16 Energy Institute is here with us today and will be
17 speaking under item 3, public presentations.

18 Also like to inform the Commission that
19 Jim Stewart, Chairman of the BioEnergy
20 Association, will be delivering his presentation
21 over the phone to us this morning.

22 We've also had a number of parties who
23 have expressed interest in speaking under public
24 comments. We have quite a few people this
25 afternoon, or perhaps before lunch, that would

1 also like to offer their comments and responses to
2 the questions outlined in the workshop notice.

3 A couple of administrative things. For
4 those who are participating by the phone, we again
5 ask that they minimize noise so that it does not
6 affect our proceeding today.

7 For those wishing to deliver comments
8 that have not been identified in the agenda today,
9 I'm asking that you fill out your blue forms and
10 provide them to me, and I will take them up to the
11 dais.

12 Also, I have been informed that we may
13 have a fire drill today. In the event that that
14 happens we will have to evacuate this building
15 within five minutes. We've asked everybody to go
16 across the street to the park. And for those who
17 are listening on the phone, I would imagine that
18 we would be out of the building 30 to 45 minutes
19 before we resume the proceeding. So hopefully
20 that will not happen, but it could happen sometime
21 today.

22 So, with that, I would like to return it
23 back to Dan Fong.

24 MR. FONG: Thank you. My brief
25 presentation this morning will provide some

1 background and context for the balance of today's
2 proceeding. So I will briefly discuss some
3 background points; discuss some earlier material
4 that we presented on a May 17th workshop on
5 petroleum reduction scenarios and alternative
6 fuels.

7 I'll briefly go over some of the
8 alternative fuel issues that were raised in our
9 May 17th workshop to sort of give you all a better
10 understanding of what we're trying to achieve in
11 today's proceeding.

12 And then following my presentation will
13 be a presentation by the ARB Staff on some of
14 their pertinent regulatory activities that would
15 affect our current and future fuel supply for
16 transportation energy.

17 In 2003 the Energy Commission adopted
18 its first Integrated Energy Policy Report. And in
19 that document the Commission set forth policy to
20 reduce onroad fuel use to 15 percent below the
21 2003 demand level. And secondly, we recommended
22 that California increase its use of alternative
23 fuels to 20 percent of onroad fuel use by 2020;
24 and then 30 percent by 2030.

25 In the May 17, 2005 Energy Report

1 workshop where we brought forth analysis on a
2 variety of petroleum reduction options, again the
3 staff found that a combination of efficiency and
4 alternative fuel options were going to be required
5 in order to meet our petroleum reduction goals.

6 At that time the Energy Report Committee
7 clearly directed our staff to more fully establish
8 a factual basis for the alternative fuel barriers
9 and actions related to meeting our air quality
10 goals.

11 In that May 17th workshop the staff
12 presented a number of different petroleum
13 reduction scenarios based upon various options
14 that we felt had merit for consideration in some
15 broad strategy to meet our petroleum reduction
16 goals.

17 What I'm showing here in this particular
18 slide is just one of those examples. And what
19 this slide depicts is how we might achieve the
20 2003 onroad petroleum fuel usage goal, which is
21 indicated by that dashed line running across the
22 graph. And that's roughly slightly below 15
23 billion gallons of onroad gasoline and diesel fuel
24 consumption.

25 The uppermost line is the staff's

1 projected forecast for onroad gasoline and diesel
2 fuel use, assuming that the state's greenhouse gas
3 emission standards are fully implemented.

4 The lines below that then show different
5 energy increments that we can relate to different
6 petroleum reduction options. And this particular
7 slide is the combination of efficiency
8 improvements and expanded use of a variety of
9 alternative fuels. The ones that we listed on
10 this particular slide include ethanol going up to
11 E-10 from the current ethanol blend of
12 approximately 5.7 percent.

13 We also note that natural gas, LNG or
14 gas-to-liquid fuels would make up a good portion
15 of that future petroleum reduction. We also show
16 the possibility of light duty diesels being
17 deployed in greater numbers here in California.
18 Although diesel is also a petroleum fuel, the
19 efficiency of that technology allows a substantial
20 amount of gasoline to be reduced. And so there
21 still is a net petroleum reduction due to a light
22 duty diesel strategy.

23 But, again, this illustrates the
24 importance of both efficiency measures and
25 alternative fuels. It's not likely that we'll be

1 able to achieve these long-term petroleum
2 reduction goals without successful implementation
3 of both of those modes of petroleum reduction.

4 Now, in the workshop on May 17th, I
5 pulled out from the transcript a number of
6 comments made by those participants in that
7 proceeding. Now, I've paraphrased statements that
8 were presented to our Commission at that time.
9 But if you were to go through that transcript I'm
10 sure you would be able to find these phrases and
11 comments.

12 First off, one of our speakers said that
13 there are a number of challenges in order to go to
14 an E-10 gasoline blend. And the primary issue
15 raised by that speaker was that if we were to do
16 so we must insure that air quality is not
17 compromised.

18 A second point was raised by one of the
19 participants in that workshop. Again, this
20 statement says that the state's predictive model
21 which currently would impose a certain economic
22 penalty on those refiners who might choose to go
23 to an E-10, that in producing a fuel they would
24 have to take measures that would not increase NOx
25 emissions.

1 Another speaker commented that we are
2 not currently perhaps viewing ethanol's reduction
3 and CO2 appropriately because CO, I'm sorry, may
4 be undervalued because current reactivity rates
5 for that emission is valued at too high of a
6 level.

7 Another speaker commented that
8 biodiesel, another one of our alternative fuel
9 options, has NOx and specification issues. And
10 then lastly, another speaker commented that the
11 permeation effects of ethanol and gasoline need to
12 be mitigated before going forward.

13 So that gives, I think, a good flavor of
14 some of the important air quality issues that are
15 being raised by the potential of increased use of
16 alternative fuels and what we might need to do in
17 order to be successful with increased deployment
18 of some of these alternatives.

19 That completes my remarks. If there are
20 any questions I'll be glad to take them. And then
21 we'll jump into the ARB's presentation.

22 Yes?

23 MR. WELSTAND: Just to clarify --

24 COURT REPORTER: Come to a microphone,
25 please.

1 PRESIDING MEMBER GEESMAN: You need to
2 come up to the microphone and introduce yourself
3 for the court reporter.

4 MR. WELSTAND: Steve Welstand with
5 Chevron Products Company. Just a clarification on
6 your last slide on that second bullet. I thought
7 I heard you say that the state's predictive model
8 currently imposes an economic penalty. Was that
9 on E-10?

10 MR. FONG: Yes. I think that remark was
11 really focused on E-10.

12 MR. WELSTAND: Thank you.

13 MR. FONG: So we'll now jump to a
14 presentation by the Air Resources Board.

15 MR. SIMEROTH: Thank you. My name is
16 Dean Simeroth. I'm Chief of the Criteria
17 Pollutants Branch in the Stationary Source
18 Division of the Air Resources Board. The main
19 function of my branch is to develop the fuels
20 regulations for the Board.

21 California's air quality problem is that
22 we have over 24 million gasoline-powered vehicles;
23 we have over a million diesel-fueled vehicle and
24 engines; we have in excess of 34 million people;
25 and over 90 percent of Californians breathe

1 unhealthy air.

2 In terms of our fuel programs, the Board
3 first adopted regulations for motor vehicle fuels
4 in 1971. I became Chief of the Criteria Pollution
5 Branch in 1987 and activity seemed to pick up
6 about then.

7 And we've gone through three phases of
8 gasoline regulations. We've adopted
9 specifications for alternative fuels. And we've
10 modified the diesel fuel regulations at least
11 twice.

12 Why have we done this? Here is a
13 summary of the emission reductions. Point out
14 they're significant. Hydrocarbons over 400 tons a
15 day; carbon monoxide over 1300 tons a day. And
16 NOx in excess of, or about 200 tons a day.

17 The phase three of the reformulated
18 gasoline program was originally adopted in 1999.
19 It became available for refiners to use in the
20 year 2000. MTBE was finally removed from the
21 state's gasoline in December of 2003. It included
22 a predictive model which -- actually an update to
23 the predictive model in 1999. Provided some
24 additional flexibility to use ethanol.

25 The Board asked staff to follow up on a

1 number of items, on such things as commingling,
2 and that's mixing of an oxygenated fuel with a
3 non-oxygenated fuel; pursue a waiver from the
4 federal oxygen requirement; look into the issue of
5 permeation; and some other miscellaneous things.

6 Almost all of that we've done and
7 addressed. Today ethanol is allowed to be used
8 between zero and 10 percent. Federal RFG oxygen
9 content requirement is still in existence. Over
10 95 percent of the reformulated gasoline contains
11 about 6 percent ethanol.

12 Since 1999 the ethanol consumption in
13 the state has gone from about 10 million gallons
14 per year to over 900 million. And the permeation
15 has been the issue. Permeation is the migration
16 of liquid fuel components into the soft portion of
17 motor vehicle fuel systems.

18 We had known in 1999 that ethanol could
19 lead to an increase in permeation, and thus an
20 increase in evaporative emissions. There was a
21 joint ARB/Coordinating Research Council study that
22 was published last year. It found that ethanol in
23 gasoline increased permeation emissions about 65
24 percent.

25 The second phase of that test program is

1 being conducted by the Coordinating Research
2 Council, looking at more advanced technology
3 vehicles, the so-called partial zero emission
4 vehicles and flexible fuel vehicles, and also
5 we're including a E-85, that's 85 percent ethanol
6 fuel.

7 We're in the process of updating our
8 emission inventory for motor vehicles to reflect
9 the results out of the first study. And as soon
10 as the results are available out of the second
11 study we'll do another update.

12 The predictive model is part of our
13 phase two regulations to provide flexibility to
14 refiners. And producing complying gasoline that
15 allows offsetting increasing one parameter, such
16 as the 50 percent distillation temperature, and
17 offsetting the emissions impact that increased by
18 decreasing other parameters such as sulfur or
19 olefins, or something along that line.

20 We're in the process of holding public
21 workshops this year to discuss with stakeholders
22 potential changes to our regulations including an
23 update to the predictive model. We've been
24 anxiously awaiting the results of the Coordinating
25 Research Council study, looking into this, where

1 they have data on 12 fuels and 12 late model
2 vehicles on exhaust emissions. That will become
3 the cornerstone of our update of the predictive
4 model.

5 PRESIDING MEMBER GEESMAN: Dean, who is
6 the Coordinating Research Council?

7 MR. SIMEROTH: It's a consortium of oil
8 companies and vehicle manufacturers; and they're
9 set up to fund, direct, conduct research into
10 issues that involve both motor vehicle fuels and
11 motor vehicle emissions.

12 PRESIDING MEMBER GEESMAN: And on a
13 study such as the permeation study, are their
14 conclusions based on actual measured emissions or
15 modeled emissions?

16 MR. SIMEROTH: The conclusions, the 65
17 percent I mentioned, was based on measured
18 emissions only. We will take that information and
19 put it into our EMFAC model and try to model how
20 that affects the California fleet emissions.

21 PRESIDING MEMBER GEESMAN: When they
22 measure emissions how do they do that?

23 MR. SIMEROTH: Well, in this case they
24 selected ten vehicles that we felt were
25 representative of the California fleet -- and, of

1 course, ten vehicles could never be representative
2 of the fleet. They removed the fueling system and
3 the evaporative control for that fueling system
4 from the vehicle, intact, without taking it apart.

5 They put that into a chamber and they
6 put the various fuels into it and measured the
7 emissions in the chamber. And by that I mean what
8 would permeate through the system would result in
9 increase in the concentration of organic compounds
10 in the chamber. You measure that concentration;
11 you know the volume of the chamber, and you can
12 determine the mass rate of emissions.

13 That was done for holding at a steady
14 state temperature, and also for doing the so-
15 called diurnal test where you vary the temperature
16 of the time.

17 PRESIDING MEMBER GEESMAN: And is that
18 an effort then to make an adjustment to capture
19 the influence of meteorological effects?

20 MR. SIMEROTH: Yes, in terms of the
21 temperature changes. Turns out for permeation the
22 main driver is temperature. For every 18 degrees
23 Fahrenheit that the temperature increases,
24 permeation emissions double. And consequently for
25 every 18 degrees decrease, they cut in half.

1 So if you don't know a temperature a
2 profile it's really hard to estimate the
3 permeation effects.

4 PRESIDING MEMBER GEESMAN: And does
5 humidity or any other meteorological condition
6 have an impact?

7 MR. SIMEROTH: Doesn't seem to have the
8 same impact as the temperature change. Anything
9 that doubles the rate is going to dominate.
10 Humidity and other things certainly will influence
11 it, but at the Air Resources Board we've used
12 permeation devices since mid 1970s to provide
13 calibration gases for our emitter monitors. And
14 you do that by holding it at a temperature and
15 blowing air across. And we've learned that that
16 temperature is critical for the rate that the
17 hydrocarbons come off. And the blowing the air
18 across doesn't seem to influence it very much.

19 PRESIDING MEMBER GEESMAN: Thank you.

20 MR. SMITH: Dean.

21 MR. SIMEROTH: Yes.

22 MR. SMITH: Quick question on the
23 permeation. Is the relationship between the
24 concentration of ethanol and fuel and the rate of
25 permeation linear? If you doubled the ethanol

1 would you expect a doubling of the --

2 MR. SIMEROTH: We would not expect that.

3 But that's one of the things the second test
4 program is looking into. And I suspect it will
5 not be linear, but we don't know yet for sure.

6 COMMISSIONER BOYD: Dean, at what
7 percentage ethanol in the gasoline does the
8 materials compatibility issue arise? And at what
9 point have we seen vehicle manufacturers change,
10 therefore, materials that maybe don't -- are more
11 compatible and maybe don't have a permeability
12 problem? Or is there such a correlation?

13 MR. SIMEROTH: There's materials that
14 are less permeable than others. The driver for
15 vehicle manufacturers, and there's representatives
16 here in the audience that can answer this better
17 than me, is our enhanced evap standards where we
18 change the conditions of the vehicle evaporative
19 test and also made it more stringent at the same
20 time.

21 So they had to test vehicles at higher
22 temperature longer times and for a compliance of a
23 much more stringent standard. For new vehicles
24 our evap standard is down at the level where half
25 of the emissions impacting that are coming from

1 out-gassing of the tires and other plastic
2 components in the car, not from the fuel.

3 So, new vehicles, they pretty well have
4 solved the problem. The problem, as with a lot of
5 things, the existing fleet.

6 COMMISSIONER BOYD: And does that
7 existing fleet definition apply to the large
8 numbers of flexible fuel vehicles running around
9 out there in our fleet?

10 MR. SIMEROTH: That is correct. Also
11 one of the things we're doing -- not we're, but
12 the CRC is doing in their latest study, I think I
13 mentioned earlier was the E-85 test fuel for one
14 of the flexible fuel vehicles that in the new test
15 fleet.

16 Okay. We're hoping to get the
17 predictive model update done this year, and get it
18 to the Board either late this year or early next
19 year. It must be formally approved by the Board
20 as a regulatory change. It also must be subject
21 to independent scientific peer review by the
22 University of California as required by state law.

23 Any regulatory change must obviously
24 follow Administrative Procedure Act. And as part
25 of that we must respond to all stakeholder

1 comments and concerns.

2 PRESIDING MEMBER GEESMAN: Dean,
3 presumably then the predictive model attempts to
4 make some representation of the vehicles in the
5 fleet, as well, does it not?

6 MR. SIMEROTH: That is true. From the
7 beginning we've had so-called technology groups
8 within the predictive model. We had originally
9 two; we have three now; and will have four with
10 this next update.

11 PRESIDING MEMBER GEESMAN: And how do
12 you represent, or create a representative sample
13 of what you think the fleet looks like?

14 MR. SIMEROTH: Basically we look at the
15 vehicle technology and group them by that. One of
16 the first ones was looking at the three-way
17 catalyst when it was introduced, and when it
18 became effective.

19 Then the next major was going over to
20 all fuel injectors in combination with through-
21 the-catalyst and closed-loop calibration systems.

22 You can't do it year by year because the
23 technology doesn't get introduced year by year.
24 The weightings of the groups are by the emissions
25 and the number of vehicles within the group. But

1 first is on the emissions, so that each grouping
2 is weighted by its contribution to the emission
3 inventory.

4 PRESIDING MEMBER GEESMAN: And when you
5 do that are you trying to take a snapshot at a
6 single moment in time to replicate the fleet? Or
7 are you trying to capture how the fleet evolves
8 over some period of time?

9 MR. SIMEROTH: It's adjusted over
10 periods of time. The next update will be based
11 upon what the fleet, we think anyway, the fleet
12 will look like in 2005. And the population and
13 contributions of the individual vehicles in the
14 fleet, as it would exist in 2005.

15 DEPUTY EXECUTIVE OFFICER SCHEIBLE:
16 Dean, do you mean 2010?

17 MR. SIMEROTH: I'm sorry, 2010.
18 Currently it's 2005.

19 (Laughter.)

20 PRESIDING MEMBER GEESMAN: So what
21 you're trying to do is pick up a five-year time
22 sample, then?

23 MR. SIMEROTH: Yeah, when we adopted the
24 phase two regulations and the predictive model,
25 the predictive model was adopted in June 1994. We

1 came up with the concept that the predictive model
2 should be updated regularly to reflect the fleet.

3 We also recognized that the emission
4 testing wouldn't happen fast enough; that we could
5 do it yearly. We also recognized that refiners
6 wanted stability with time, so they wouldn't be
7 having to make changes to their refining
8 technology.

9 So looking at all that a five-year
10 interval seemed about right. And we would have
11 did it last year except that the results of this
12 CRC test program weren't available. And I've been
13 expecting it every month since March of this year,
14 so, hopefully soon.

15 PRESIDING MEMBER GEESMAN: How many
16 vehicles ordinarily make up your sample that you
17 hope is representative of the fleet?

18 MR. SIMEROTH: There's no ordinary terms
19 of vehicles in terms or providing data for us.
20 The first update had probably around 800 vehicles,
21 test results from 800. But that represented all
22 the emissions data available until 1994, including
23 auto/oil study, which was still the keystone of
24 all the work.

25 We'll get probably about 12 vehicles and

1 12 fuels out of this next study to represent the
2 latest technology group.

3 PRESIDING MEMBER GEESMAN: So your
4 sample size seems to have gone down quite a bit
5 from when you started in this area.

6 MR. SIMEROTH: Yeah. The auto/oil
7 study, I think originally was going to be about 10
8 million. It ended up being about \$30 million.
9 And the ability to fund that level of study hasn't
10 been there since.

11 Also, if you look at the technology and
12 how it's changed, other than emissions going down
13 significantly from the vehicle exhaust in terms of
14 better catalysts, larger catalysts, et cetera, the
15 technology has been about the same.

16 So, in addition, there's the so-called
17 end-use testing where our mobile source operation
18 divisions test the representative sample vehicles
19 to see how the vehicles are performing, so-called
20 end-use. When we make a fuel change, we include
21 that as part of their test program. So we've
22 gotten supplemental confirmation that the model's
23 working about right out of that, as well.

24 PRESIDING MEMBER GEESMAN: And how do
25 you do that end-use testing?

1 MR. SIMEROTH: We use our laboratory in
2 southern California, in El Monte. They bring the
3 vehicles in. They give the person who owns the
4 vehicle a loaner vehicle; also do repairs that may
5 be necessary for the vehicle to bring it up to
6 best of its ability.

7 But basically they test it as it comes
8 in. If there's a fuel change, where they're
9 trying to do that, they will drain what's in the
10 vehicle fuel tank and put the new fuel in and test
11 it again.

12 PRESIDING MEMBER GEESMAN: How many
13 vehicles ordinarily make up a sample under the
14 end-use testing?

15 MR. SIMEROTH: Oh, that's probably about
16 100, if memory serves me correctly. But those are
17 not as stringent a test program as you would do
18 when you're trying to look at a fuel effect, where
19 you're doing multiple fuels so you hold one
20 parameter constant, or change one parameter and
21 hold the other parameters constant. Then change
22 another parameter and hold the other parameters
23 constant.

24 Do multiple test modes to make sure that
25 the test modes aren't influencing the results.

1 Here they bring it in; they do one test mode; do a
2 fuel change to repeat the test mode.

3 PRESIDING MEMBER GEESMAN: Thank you
4 very much.

5 MR. SIMEROTH: Okay, so hopefully
6 that'll get done soon.

7 Alternative fuel specifications. They
8 were originally adopted in 1992 as part of our low
9 emission vehicle program. We adopted
10 specifications for fuel methanol 100 percent and
11 85 percent; fuel ethanol 100 percent and 85
12 percent; compressed natural gas, liquified natural
13 gas and hydrogen.

14 This was not to reduce emissions but
15 insure availability of clean alternative fuels
16 that would be of uniform quality roughly, that the
17 engine manufacturers could design their vehicles
18 around, and their control technology around.

19 Compressed natural gas is the one I'll
20 address first. It's in title 13; its
21 compositional specifications as it currently
22 exists. It's based upon technology, vehicle
23 technology available at the time. And, again, it
24 supplied engine manufacturers with a known fuel
25 quality for designing their engines and control

1 systems. And also was to address fuel-related
2 engine performance and excess emission problems as
3 they existed in the vehicle technology at that
4 time.

5 Our specifications are more stringent
6 than the Public Utilities Commission
7 specifications. At this time there is still no
8 national motor vehicle fuel specification. USEPA
9 has not acted yet.

10 Looks something like this, as a summary
11 of it. 88 percent methane minimum; maximum 6 --
12 percent ethane; C3 and higher is maximum 3
13 percent. 88 percent of California's natural gas
14 meets our CNG specifications. Unfortunately the
15 12 percent is concentrated in the central part of
16 the state where gas is mostly being derived from
17 coproduced with crude oil.

18 LNG has been a recent issue. One LNG
19 terminal could supply up to 14 percent of
20 California's supply. Depending upon the quality
21 if it becomes a increased energy content, that
22 could impact emissions by increasing emissions or
23 causes durability performance problems for
24 existing stationary mobile source equipment. So
25 we've been concerned about that; I think that's

1 going to work out okay.

2 Again, fuel quality. Test programs have
3 confirmed that there is a potential for NOx
4 emissions to increase. And they may be
5 significant depending upon the type of vehicle and
6 stationary source. And we're going to need some
7 additional tests to be able to quantify those
8 impacts. The Energy Commission is graciously, I
9 think, donating some money to allow those tests to
10 happen. We're very appreciative of that. That's
11 a major missing point, source of information we
12 need.

13 There was a joint workshop hosted
14 primarily by the Public Utilities Commission, the
15 Energy Commission, the Air Resources Board,
16 Division of Oil and Gas also participated.
17 Explored these issues, natural gas quality and
18 emissions and performance of the equipment using
19 the natural gas.

20 That's a good foundation for us going to
21 the next steps. The next steps are working with
22 other state agencies and stakeholders. We have a
23 workshop scheduled for August 3rd. The Energy
24 Commission will be participating actively with us
25 at workshop, and we'll start exploring how we

1 could update our CNG specifications and make them
2 more flexible and not compromise emissions.

3 Liquified petroleum gas. Same type of thing.
4 Vehicle technology at that time; provide engine
5 manufacturers with a known fuel quality for
6 designing their systems.

7 We've amended that one twice in '97 and
8 '98, basically changing the propane content
9 specification. Now it looks something like this.
10 The minimum propane content, maximum propane and
11 other contents.

12 Large spark ignition engines. Word left
13 off here, apologize for that. The Air Resources
14 Board Staff are proposing exhaust emission
15 standards that will require a consistent and clean
16 fuel to facilitate the use of advanced fuel
17 injection systems on forklifts and other equipment
18 using liquified petroleum gas.

19 There's some issues with our current LPG
20 fuel quality. For those we're being actively
21 investigating those. It looks like it's primarily
22 involving residual heavy hydrocarbons that may be
23 present in some of the LPG being supplied.

24 We will be conducting a fuel survey to
25 investigate that and develop recommendations.

1 Possible action is revise our specification for
2 heavy hydrocarbons. The other possible is work
3 with the distribution/production industry for LPG
4 to make materials changes in their equipment, such
5 as putting a filter on to remove the hydrocarbons.

6 Biodiesel. We don't have a
7 specification for the biodiesel at this time as an
8 alternative fuel. It's a more recent fuel.
9 However, we know, based on life cycle analysis,
10 biodiesel has potential to reduce greenhouse gases
11 in a significant manner. One gallon of diesel is
12 about 28 pounds of CO2. On a life cycle analysis
13 basis one gallon of 100 percent biodiesel would be
14 about 6 pounds of carbon dioxide on a life cycle
15 basis.

16 Other biodiesel benefits. It does have
17 the potential to reduce particulate matter and
18 other toxic emissions significantly. Biodiesel,
19 if used and produced and supplied and everything
20 else correctly, can be used with no engine
21 modifications.

22 Can biodiesel be used in California
23 today? Yes, if it meets Air Resources Board
24 aromatics and sulfur requirements and meets the
25 Division of Measurements Standards specifications,

1 which basically limit retail sales to be 20 or
2 less.

3 And the Division of Measurements
4 Standards does have a provision to allow sales of
5 100 percent biodiesel with a variance.

6 The major issue we're trying to deal
7 with is biodiesel's impact on oxides of nitrogen.
8 This is a USEPA summary of existing data that
9 existed back in 2002 anyway. Showed that B-20
10 could increase NOx emissions by about 2 percent;
11 100 percent by about 10 percent.

12 Now, this is sort of an average impact.
13 The source of the biodiesel can impact these
14 numbers and the test modes that these numbers are
15 generated on can impact the numbers, as well. And
16 those issues are being explored actively with
17 industry. National Renewable Energy Laboratories
18 doing some test programs on this. Sandia National
19 Laboratory is also looking at the issue.

20 PRESIDING MEMBER GEESMAN: So, would the
21 source of the biodiesel also determine the CO2
22 reductions that your earlier chart showed?

23 MR. SIMEROTH: Yes, it would. All these
24 are sort of average numbers and the source of the
25 feedstocks for producing a biodiesel would impact

1 those. So once we know what California biodiesels
2 look like, we can further refine the numbers. And
3 we're optimistic that at least on a blend basis
4 the NOx impact can be addressed at this point.

5 Compatibility with verified diesel PM
6 controls. These are where we're requiring
7 existing diesel engines and fleets to be
8 retrofitted to reduce the particulate matter
9 emissions.

10 It's been asked that 20 percent
11 biodiesel be allowed to be used with some of these
12 technologies. At least one equipment manufacturer
13 has ran emissions and durability tests to
14 demonstrate that this should be feasible. Staff
15 is reviewing that information to make a decision
16 this summer. Hopefully that turns out to be
17 positive, then that would allow for biodiesel at
18 least there will be 20 percent blends to be used
19 as part of our verified diesel retrofit program.

20 And that would be a -- the military is
21 especially interested in this. They have an
22 interest in using 20 percent biodiesel blends. It
23 allows them to meet the federal requirements for
24 alternative clean fuels that they're subject to.
25 And they've been a strong advocate of this. This

1 should happen, optimistic again that this will
2 come about.

3 PRESIDING MEMBER GEESMAN: Would you see
4 then the B-20 level becoming a standardized blend
5 in California?

6 MR. SIMEROTH: Well, the issue of the
7 standardized blend in California I don't think
8 will be decided by this. Hopefully ASTM will
9 start coming out with specifications for biodiesel
10 as fuels, including blends. They're supposed to
11 be voting this year on a up to B-5 blend that
12 would actually be a modification of the existing
13 ASTM specification for diesel.

14 They're supposed to start or have
15 started discussions of a ASTM specification for B-
16 20.

17 The advantage of those, now you got
18 specifications to insure the quality of the
19 biodiesel that the public would see. And insure
20 that you don't end up with materials compatibility
21 or filter plugging or other things that our test
22 programs don't normally address, since they're not
23 emissions impacts directly, so.

24 Traditionally ASTM has filled that role.
25 We're hoping that they step forward and do it

1 again. But, if not, we will probably have to do
2 something.

3 We have set up a biodiesel work group.
4 Originally established in about mid 2004, or early
5 2004 I should say. Met again in June of 2005 of
6 this year. We will be having more frequent
7 meetings now that things are developing with
8 biodiesel.

9 We are coordinating with the Energy
10 Commission Staff on this issue. They've been
11 attending our workshops and workgroup meetings on
12 this. And hopefully this will have significant
13 impacts.

14 Next steps. We will continue working
15 with ASTM, California Energy Commission and
16 industry and other stakeholders to resolve the
17 remaining issues. And hopefully get a
18 commercially viable biodiesel fuel that can make
19 inroads.

20 PRESIDING MEMBER GEESMAN: If Congress
21 raises the, I guess for lack of a better word I'll
22 use the term quota, for us to utilize ethanol, how
23 does that interact with any increased use of
24 biodiesel that might occur in California?

25 MR. SIMEROTH: The drafts of the Act

1 I've seen would allow about a gallon-to-gallon
2 interaction. One gallon of, I think it's got to
3 be at least B-20, or biodiesel, I should say,
4 would equal one gallon of ethanol, 100 percent
5 biodiesel.

6 That is positive. Biodiesel has a tax
7 incentive to help offset its cost disadvantage it
8 had historically. Hopefully that will help, as
9 well.

10 And actually that concludes my
11 presentation. Appreciate your patience with the
12 length of it.

13 DEPUTY EXECUTIVE OFFICER SCHEIBLE: And
14 I would just like to add in very quickly, thank
15 you, Dean. And Dean covers much of the fuel-
16 related activity at ARB, but not all of it. And
17 we are very much dedicated to what we think is the
18 ultimate solution for air quality, which are zero
19 emissions from either the transportation sources,
20 or from the industrial sources. And as part of
21 that we are heavy promoters of the use of
22 electricity as a substitute for the current fuel
23 mix. Be it in things like agricultural pump
24 applications or in vehicles.

25 And also, as probably you all know, we

1 are very strong proponents of Cal-EPA and the
2 hydrogen highway, and looking at hydrogen future
3 for California. And trying to make that a reality
4 and move it along.

5 So, those fuels are also in the mix at
6 our agency.

7 COMMISSIONER BOYD: Thank you for your
8 comment. I was just about ready to ask you is
9 electricity still considered an alternative fuel
10 in vehicles, but you said it is, so, thanks.

11 MR. FONG: Were there any other
12 questions from the audience?

13 MR. BULLARD: My name is Art Bullard.
14 I'm with Biosphere Environmental Energy. I had a
15 couple of questions.

16 I noticed that in the alternative fuels
17 specifications biodiesel was not evaluated. There
18 were a couple of things that concerns me about
19 that. First of all, biodiesel has no sulfur.
20 With the present additives that have been
21 developed it reduces NOx emissions below regular
22 diesel.

23 With the catalyst and particulate traps,
24 you can reduce biodiesel blends below CNG as far
25 as pollution, including NOx. It's not an imported

1 fuel. Even the LNG terminals are going to be
2 handling imported LNG. So this is something that
3 replaces petroleum Btus. It can be grown and
4 produced locally, which is an important thing from
5 our perspective.

6 There's presently additional testing by
7 the National Biodiesel Board that's happening
8 right now in Texas that's going to substantiate
9 the NOx reductions and increased fuel efficiency
10 with the additives. That's presently going on in
11 Texas. Their testing meets the same requirements
12 for California testing, so the results will be
13 directly transferrable to California.

14 It was my understanding that there is a
15 national biodiesel spec right now. And there were
16 a couple of other things that come into play that
17 I think is important to evaluate, by some of the
18 public agencies that have tried using natural gas
19 versus diesel. Compressed natural gas costs are
20 about 40 percent higher in maintenance. The
21 efficiency of diesel and biodiesel is 17 to 28
22 percent more efficient. The lubricity problem
23 that you're going to be faced with with low sulfur
24 diesel can be overcome by adding 2 percent
25 biodiesel, and it enhances the greenhouse

1 emissions, and with the additive reduces NOx.

2 So, we're looking at evaluating things
3 based on B-2, B-5 as maybe a standard and up to B-
4 20, which is an optimum utilization of biodiesel.

5 I'm just a little concerned with the
6 initial contacts I had with the ARB that they've
7 been very negative about any diesel at all. The
8 South Coast Air Quality Management District has
9 outlawed replacement of public fleet vehicles with
10 any type of diesel vehicle.

11 I have talked with a number of the
12 transit and fleet managers in southern California.
13 And they've indicated that they've had so many
14 problems with the CNG. For instance, Long Beach
15 Transit has now transferred to a hybrid gasoline
16 bus as opposed to CNG. Their preference is to do
17 a diesel hybrid bus because it's a lot more
18 efficient, a lot less maintenance.

19 Everything that I've been dealing with
20 so far has indicated biodiesel and diesel fuel
21 blends is definitely a way to go because it's
22 immediately transferrable today. We can implement
23 this, reduce emissions, and replace petroleum
24 Btus.

25 So I just want to be sure that there is

1 an adequate focus on the biodiesel because it
2 hasn't been evaluated in this. And I guess that's
3 basically what I need to say at this point.

4 COMMISSIONER BOYD: That was a question?

5 MR. BULLARD: Well, I'm just curious,
6 you indicated that there's a workshop now, so I
7 assume that they are now evaluating this. But
8 nothing in this presentation has really indicated
9 that they've done any evaluations based on the
10 alternate fuel specifications, so.

11 DEPUTY EXECUTIVE OFFICER SCHEIBLE: Our
12 goal is to get enough information so that we can
13 set a spec for biodiesel and when it's blended;
14 and do that in a way that we're confident that
15 there are not emissions problems with using
16 biodiesel blends.

17 MR. BULLARD: And I think the testing
18 has already shown that. But there's additional
19 testing being done.

20 DEPUTY EXECUTIVE OFFICER SCHEIBLE:
21 Bring us all the data.

22 MR. BULLARD: Okay, thank you.

23 COMMISSIONER BOYD: I think you should
24 take heart in the fact that I heard Mr. Simeroth
25 say that although there wasn't a standard for it,

1 it's new. He included it in his presentation and
2 it's certainly included in the CEC's analyses of
3 alternative fuels. So I think it's on the table,
4 so.

5 PRESIDING MEMBER GEESMAN: Yeah, I'd
6 just observe talk is cheap, actions count a lot
7 more than talk.

8 MR. FONG: If there aren't any other
9 questions we can then move -- oh, I'm sorry, yes.

10 MR. ANAIR: I just have a quick
11 question. Don Anair with Union of Concerned
12 Scientists.

13 On the biodiesel topic I think, Dean,
14 you mentioned that you expected that blends of
15 biodiesel would be able to overcome the NOx issue.
16 And I was just curious if you think that's going
17 to be in the fuel formulation, itself, or you
18 imagine some sort of offset approach.

19 MR. FONG: Could you repeat that
20 question again?

21 MR. ANAIR: Sure. The question is for
22 low blends, I think there was a comment that the
23 NOx emissions would be able to be overcome. And
24 the question is will that be through fuel
25 formulation fuel specification, or will it be

1 through some sort of offsets.

2 MR. SIMEROTH: What information we have
3 at the moment seems to indicate the use of
4 additives would be the method which would then be
5 a fuel specification. That data is pretty limited
6 at the moment, and we're hoping to get more.

7 MR. ANAIR: Okay. And just quickly
8 also, the idea has been brought up for like a low
9 blend biodiesel throughout California, and I was
10 just curious if ARB has done any initial air
11 quality analysis looking at the impacts of low
12 blend biodiesel throughout the state.

13 MR. SIMEROTH: To the extent that we
14 projected how much additional oxides of nitrogen
15 would be there off a, quote, an average biodiesel,
16 we've looked at it that way. The NOx, by EPA's
17 investigation, seems to be relatively linear.
18 But, as I mentioned earlier, one of the things
19 that hampers at the moment, what is going to be
20 the feedstock for California based biodiesel.
21 That would be critical for doing the analysis and
22 some other information. What levels are actually
23 going to use that; what type of additives they
24 would be using, et cetera.

25 MR. ANAIR: Good, thank you.

1 PRESIDING MEMBER GEESMAN: Dean, is
2 there a seasonality component to your thinking on
3 this?

4 MR. SIMEROTH: The seasonality on
5 biodiesel is that it's sensitive to cold
6 temperatures. There are additives and ways to get
7 around that sensitivity. The cloud point is
8 relatively high temperature compared to other
9 commercial diesel formulations.

10 But diesel, itself, has that issue and
11 you have to blend around that, as well. So, that
12 would be the same thing.

13 PRESIDING MEMBER GEESMAN: Thank you.

14 MR. STEWART: (inaudible) -- operability
15 is a great question. And just to provide, I
16 guess, a point of context, biodiesel blends, and
17 even the neat fuel, are used at temperatures as
18 low as 30 below zero. Glacier National Park is
19 one example. So I think in California hopefully
20 you won't get to those points.

21 MR. ALTSHULER: Yes, good morning. I'm
22 Sam Altshuler with PG&E. I've done a lot of air
23 quality and emissions work over my 35-year career.

24 I want to raise one issue that may or
25 may not be significant. Dean, you spoke about the

1 doubling of permeation when you use ethanol in the
2 systems there.

3 I don't know how many of you guys have a
4 vehicle that has a temperature indicator on your
5 dashboard showing the road temperature, but if you
6 do you'll notice that when you're on the highways
7 in hot weather that going down a main highway you
8 will have four or five degrees hotter temperature
9 on the road than you do if you get off the road.

10 And I'm not so sure that our
11 environmental models that we have, the emissions
12 models, account for the heat that's generated on
13 the road which would increase the permeation rate
14 by easily 30 percent. And it could be 30 percent
15 of nothing, but there is an added temperature
16 there when you have vehicles on the hot roadway.

17 And the worse the air quality is the
18 more stagnant the air, probably the hotter the
19 freeways are. So it's a self-perpetuating cycle
20 there.

21 Thank you.

22 MR. SIMEROTH: We do recognize that, and
23 that's one of the issues we're wrestling with in
24 order to update our impact model for motor vehicle
25 emissions. Good point.

1 PRESIDING MEMBER GEESMAN: That would be
2 captured in the temperature adjustment you make to
3 the data coming from these ten vehicles that the
4 Coordinating Research Council evaluates?

5 MR. SIMEROTH: Yes. How we translate
6 that, that number from those ten vehicles into an
7 adjustment to the emission inventory. And
8 obviously it's not an easy thing to do. We've
9 been working on that for several months now, and
10 we'll hopefully get a new estimate later this
11 month. And put that out for comment, as well.

12 MR. SMITH: Dean, quick question. You
13 made a comment earlier about modifications of the
14 use of biodiesel, modifications to engines. Did I
15 understand you correctly that no modifications are
16 required for the use of biodiesel? Is that true
17 across all concentrations of biodiesel?

18 MR. SIMEROTH: To the state of our
19 knowledge it's true at this point in time. I
20 doubt if we've seen all engine configurations
21 being tested with biodiesel. But biodiesel is a
22 pretty good surrogate for diesel. It blends in
23 the diesel pretty readily; the (inaudible) and
24 other characteristics are pretty similar to
25 conventional diesel.

1 Conventional diesel is such a broad
2 mixture of hydrocarbons it fits in there pretty
3 good. And that's a real advantage to biodiesel in
4 its use in California, is that lack of engine
5 modification.

6 MR. KOEHLER: Dean, don't sit down.

7 (Laughter.)

8 MR. KOEHLER: Tom Koehler, California
9 Renewables Fuels Partnership, Pacific Ethanol.

10 Thank you for the EMFAC updates; that
11 was actually going to be my question. When is
12 that coming for public input, because just for
13 perspective's sake, there is quite a bit of
14 uncertainty on the permeation issue.

15 I think ARB has at one time talked about
16 maybe somewhere in the range of 45 tons, 50 tons a
17 day. There's a study done by the API that says
18 it's 14. So big range. We all need to
19 collectively get our arms around it. So that'll
20 be good to see the next version.

21 The question I have for you when you
22 consider air quality is now, with the adoption of
23 the Pavley Bill, and the Governor's
24 pronouncements, is CO2 an air quality pollutant on
25 your radar list?

1 MR. SIMEROTH: Well, greenhouse gases
2 has been on our list for a long time. We've
3 always looked at the impact on greenhouse gas
4 emissions for any of our standards. So that's not
5 going to change.

6 In terms of the policy question, I'm
7 going to turn to my Deputy Executive Officer.

8 DEPUTY EXECUTIVE OFFICER SCHEIBLE: The
9 impact on greenhouse warming gases of all of our
10 regulations it's been something we've considered
11 now for ten years. We try to maximize the
12 benefits and minimize any increases in global
13 warming gases.

14 With the Governor's policy on warming
15 gases, I'm sure we're going to redouble our
16 effort. But, as part of our action/action/action
17 we're expected to do both. Figure out a way that
18 we protect the air that Californians breathe in
19 the cities and the urban areas, and get the smog
20 down. And also do our part for global warming.
21 So that's our charge, and we'll be looking at
22 both, figure out how to do both of those in any
23 parts of our fuel regulations.

24 MR. KOEHLER: But from a policy
25 perspective the state is on record and being clear

1 that CO2 is an air pollutant that justifies
2 regulation, is that correct?

3 DEPUTY EXECUTIVE OFFICER SCHEIBLE:

4 Well, yeah, we did that in the Pavley Bill. We
5 reduced global warming gases and will be seeking
6 to do that in all of our programs.

7 MR. KOEHLER: And is there any
8 connection between CO2 and ambient air quality?

9 DEPUTY EXECUTIVE OFFICER SCHEIBLE: As
10 the earth warms problems such as ozone will get
11 marginally worse. But it's a long-term effect;
12 it's not a short-term effect.

13 MR. KOEHLER: Okay, thank you.

14 PRESIDING MEMBER GEESMAN: Sir.

15 MR. SHAFFER: Steve Shaffer, Department
16 of Food and Agriculture. It was interesting to
17 see that you had quantified some of the greenhouse
18 gas benefits of biodiesel. Has ARB done any
19 quantification in terms of ethanol?

20 DEPUTY EXECUTIVE OFFICER SCHEIBLE: When
21 we did the global warming regulations for the
22 light duty vehicle sector, we basically in that
23 created a credit system for vehicles that use
24 alternative fuels and the use of ethanol is in
25 there.

1 And if it's derived from corn, there's
2 one credit. If it were biomass-based, I think
3 we'd have to go back and revisit the regulation to
4 adjust the credit that is given.

5 But there's a recognition that you look
6 at the, I guess, well-to-wheels is the best
7 terminology for the amount of emissions produced,
8 and vehicles that use fuels that produce lower
9 global warming emissions in their life cycle will
10 get credited for that.

11 MR. SHAFFER: Thank you.

12 PRESIDING MEMBER GEESMAN: Yes, sir.

13 MR. BENET: I don't think you're going
14 to be able to sit down, Dean.

15 My name is Reed Benet. I'm with UC
16 Davis, focused on biofuels. And one of my
17 questions -- well, specifically, since this is
18 related to displacing petroleum, one of my worries
19 about biodiesel specifically is that there's only
20 so much supply, and it's a fairly limited supply.

21 So I'm wondering in the presentation
22 here that there wasn't a mention of biomass to
23 liquid as an alternative. Does that suggest that
24 there's no interest in this, or does it suggest
25 that you can't talk about everything in the

1 limited amount of time?

2 MR. SIMEROTH: It suggests more that you
3 can't talk about everything in a limited amount of
4 time. What you saw was actually an excerpt of the
5 briefing that we did to our Board last month,
6 which was a much more comprehensive briefing.

7 The potential for biomass to liquids is
8 recognized by us. I think we're working with a
9 couple of groups investigating this, including one
10 chaired by the California Energy Commission, to
11 see what kind of potential.

12 But it would be such things as what Mike
13 Scheible mentioned earlier, depending upon the
14 source of the biodiesel we may need to adjust the
15 greenhouse gas emissions or the NOx impact or
16 other things.

17 If you take biomass in terms of
18 pyrolysis and turn it into a gas, reactive gas,
19 into liquids, that's basically gas to liquids or
20 the Fischer Tropsch type process. And those
21 liquids turned to diesel are very good. I mean
22 they push everything in the right direction.
23 Except possibly greenhouse gas emissions.

24 MR. BENET: So as a clarification when
25 you say biodiesel you're including -- I mean is it

1 biofuels or biodiesel are you specific -- was your
2 presentation specifically on?

3 MR. SIMEROTH: My presentation this time
4 was specifically on biodiesel. But we're also
5 looking at the much broader concept of biofuels.
6 And I just didn't have time to cover that. Our
7 state of knowledge is smaller on that topic, as
8 well.

9 MR. BENET: Thank you.

10 MR. FONG: I see no further questions.
11 And I think we're ready to jump into the next
12 portion of our proceeding. And that is to take
13 some prepared presentations by interested parties
14 that had previously contacted the Energy
15 Commission.

16 I believe our order is as follows: Mr.
17 Norbeck representing the Center for Energy
18 Research and Technology.

19 MR. NORBECK: Good morning. I didn't
20 ask to speak, they asked me to speak. Also, the
21 Center that the research that CRC is doing on
22 ethanol blends is done in our lab at UC Riverside.
23 And the results will be out soon.

24 I'm going to speak today about a topic
25 of these vehicles, the extremely low emitting

1 vehicles that we had done over the last three or
2 four years. If you want to get that it's called
3 CRC presentation; I don't see it on the --

4 (Pause.)

5 MR. NORBECK: CeCERT started CR in 1992.
6 I was at Ford, became the Director. Our first
7 major funding was provided by the California
8 Energy Commission. And it was those funds through
9 PVA that we actually built the emissions lab that
10 we're going to talk about today. So I want to
11 thank you about that. And this is also my first
12 time ever at this transportation meeting, board
13 meetings. Maybe I should come more often.

14 I want to make one comment prior about
15 biodiesel and diesel fuel. We actually have a
16 process that's now in the process of being
17 patented. It takes carbonaceous matter and
18 converts it to Fischer Tropsch. It looks real
19 promising for California.

20 We gave a presentation in December,
21 which I'll send to you, to the California Council
22 on Science and Technology where California, if
23 it's aggressive on getting agricultural waste to
24 this process or similar ones, they can make a big
25 dent in imported diesel fuel.

1 Biodiesel is a relatively good fuel
2 except it's very narrowly defined. It's animal
3 fats and vegetables oils primarily. Fischer
4 Tropsch or renewable fuels isn't included in that.
5 That's just a definition.

6 So you can take the soy bean and you can
7 make diesel fuel, biodiesel. I take the whole
8 plant and make Fischer Tropsch and it's not
9 biodiesel. It's very interesting.

10 But anyway, the study that I'm going to
11 talk about today is on California vehicles that
12 are operating on gasoline, but I think that the
13 impact that they asked me to talk about with these
14 does have an impact on alternative fuels. And as
15 I said, we're doing studies with ethanol blends
16 now, different percentages that's been finished.

17 Let's go to the first slide. So I want
18 to do a quick review of air quality just to set it
19 up later. Then an evolution of emissions and fuel
20 standards, a real quick emission standard to this.
21 Then I'll go into this study that we did, it was
22 about four or five years, that we did on vehicles
23 that are operating on the road in California that
24 are, we call, extremely low emitting vehicles.
25 And then that impact on the fuels. And then some

1 comments about potential future of biomass for
2 synthetic fuels in California.

3 Next slide. Now, I've been in this
4 business, of trying to solve this problem in
5 California since I was a young man. And this is
6 just a trend. I'm sure you see it regularly, ARB.
7 These are ARB and South Coast data.

8 There was a period in the '80s, you
9 know, that we got -- this was the year that I
10 picked, it's the first year we put catalysts on
11 cars. The one is the one-hour ozone
12 concentration; the standard's down here; the other
13 is the number of days in L.A. basin that's above
14 that standard.

15 And about this point, we didn't have any
16 real change and then about this point we had this
17 dramatic reduction. And I say that a lot of this
18 has to do with two things. One was the
19 introduction of phase two gasoline in about this
20 period. And also onboard diagnostics.

21 And then we had a little turnup and
22 everybody thought we were going to not -- we were
23 going to lose the war again. But I think we've
24 come down.

25 But the real thing is there's a long-

1 term trend. And what I'm going to talk about
2 today is where this trend is going to be in the
3 year 2010, 2020; and the impact on these vehicles
4 in California that are now entering the road that
5 are extremely clean.

6 Next slide.

7 PRESIDING MEMBER GEESMAN: Before you go
8 too far, can I ask you just a couple of threshold
9 questions in your field. One, how does a graph
10 like that, and I've seen those graphs for 25 years
11 now, how does a graph like that capture weather
12 adjustments, or the influence of meteorological
13 conditions?

14 MR. NORBECK: And that's why you get
15 these ups and downs and peaks. That's what, to a
16 large extent, I think, happened here. And a lot
17 of people don't appreciate that variation of
18 meteorology. But it captures it over the fact
19 that you can look at a 20-year trend and see where
20 you're going. But you don't want to go into panic
21 mode when in one year we get higher than the
22 other. And I can remember seeing a headline in
23 the Press Enterprise saying we hit a smog wall
24 here. Well, I don't know. And then the next year
25 gets down.

1 So you got to be a little calm about
2 what you're doing. And you have to understand,
3 have confidence that your actions ultimately will
4 bring you to where you want to get to be.

5 And there's a lot of uncertainty in a
6 lot of these, even the measurements and things.

7 Go to the next slide. The other thing
8 that people, when you see a chart like that, you
9 don't realize that this is in 2002. This blue
10 area is now attainment for smog. And that the
11 area of concern that we have is now in the
12 mountains in San Bernardino and in the eastern
13 portion of the L.A. basin. And the challenge is
14 are we going to get that down to zero. Now, this
15 is for ozone.

16 Actually PM2.5, to me, is going to be a
17 tougher standard now to meet, given the new
18 standards for particulates. So, I wanted to show
19 you that, you know, one of the things that we're
20 concerned about is -- and we wanted to see in this
21 study that we had, is what's this going to look
22 like in year 2010 and 2020, and can we accelerate
23 it and get it to get attainment by 2015 or so.

24 Next slide. Now, another issue about
25 standards that was brought up. And you asked some

1 very good questions this morning earlier. An
2 emission standard you do in a laboratory with
3 certification data and cars that are pretty well
4 carefully followed.

5 The question is what do those vehicles
6 look like in the field. And what are the
7 emissions of those in the real world. Because
8 your goal is to protect public health.

9 Here is an example of this several years
10 ago, but it still is pertinent. And I'm going to
11 show you now that I think we reversed that trend.
12 And that was, here was the first tier zero
13 standards roughly on hydrocarbon, NOx and CO. And
14 when you actually went out and did the test of
15 vehicles in the field, these were three to seven
16 times higher in use.

17 And the challenge that you have is
18 getting vehicles on the road operating within the
19 standards or below, okay. And the reason that we
20 had -- there's a lot of reasons why these numbers
21 were high. One of them had to do with high levels
22 of sulfur; others had to do early on with failures
23 of the components in the exhaust system and the
24 control system, whatever else.

25 But for the most part the focus and the

1 research that's been done over the last 15 or 20
2 years or so, and it took auto/oil and a few others
3 to identify this in a real way, is now -- we're
4 focusing more on end-use real-world emissions,
5 which I'm going to show you some of the data of.

6 And I also want to say that what I'm
7 going to show you, to me, is a spectacular
8 accomplishment of California. Because the
9 California technology and fuels that's used in
10 California ultimately get to the rest of the
11 world.

12 Next slide. Now, we're going to focus
13 on what we call extremely low emission vehicles.
14 What they are, are this class of vehicles down
15 here, ULEVs, SULEVs and ZEVs. We did a few LEVs,
16 but these were the standards. And over the
17 years -- and I just wanted to show you in
18 comparison that this was the initial standards
19 roughly about 1975, what we were looking at. And
20 these are the numbers now that we're challenged
21 to, these are the standards that the automobile
22 manufacturers and the fuel suppliers are facing.
23 And the question now we have is what are these
24 doing in the field.

25 If, in fact, these vehicles were much

1 much higher, what are these -- and the challenge
2 of that -- go to the next slide -- is shown here.
3 That if you have a typical engine exhaust going
4 into the catalyst, these ULEVs and ULEVs standards
5 PZEVs, deterioration of just a few percentage, of
6 1 or 2 percent, will double your emission
7 standard.

8 And so the challenge that you have is
9 making sure that this level of catalyst efficiency
10 is maintained at 50- to 100,000 miles. And that's
11 what we're focusing on in this study.

12 It has an important part of alternative
13 fuels, also. Because if you get these emissions
14 down this well, this reactivity issue, the
15 different fuels that you have, essentially you're
16 getting to a zero emitting car. And that
17 environmental impact gets smaller and smaller.
18 And now the reason why you do alternative fuels
19 has a different reason, particularly for global
20 climate change and fuel independence.

21 Next slide. So, the project that we
22 had, and it was motivated by Chevron and Honda
23 that came first -- there were a couple of others,
24 ARB and USEPA also funded it -- is that we had
25 these very very low emitting vehicles. The

1 measurement technology was challenged. Can we
2 now, in fact, measure them.

3 And so we had to do work in the
4 laboratory as well as measure these cars on the
5 road. We had to develop new methods for measuring
6 the emissions. And that was part of it.

7 The second thing we had to do was
8 understand the activity, driving patterns, fleet
9 distribution -- these were the questions you were
10 asking this morning -- of what these vehicles will
11 be like, how they're going to be introduced into
12 the fleet, and what impact it's going to have.
13 And we use southern California as an example.

14 And then we modeled, we have air quality
15 modeling at CeCERT, the Western Regional Governors
16 Modeling Center. So we have a full complement of
17 models that are similarly used, the same ones that
18 ARB and South Coast uses.

19 And we also developed modal emission
20 models and compared them to the models that you
21 heard this morning for both EMFAC as well as Cal -
22 - USEPA.

23 Next slide. The funding agencies that
24 we had was Honda and Chevron, USEPA, California
25 Air Resources Board. And then we had other

1 smaller funding from GM, Ford Motor Company and
2 the Manufacture Emission Control Association that
3 develops the catalysts and things for us.

4 Next slide. So, the objectives were to
5 develop a method to measure these vehicles at low
6 levels, both in the lab and on the road. This was
7 a challenge. Emissions modeling to adjust the
8 current emission models to reflect how these low-
9 emitting vehicles perform in the real world. And
10 then assess the implications of these advanced
11 technology vehicles for atmospheric impacts in all
12 different levels of -- and I cannot give you,
13 we're still going on and doing the studies. We're
14 almost finished now. We're doing some very high
15 mileage vehicles with these cars because that was
16 one of the questions that was asked.

17 Next slide. We did this in our
18 laboratory at University of California CeCERT.
19 This is the lab that this vehicle's on a engine
20 dyno that was actually funded by the California
21 Energy Commission many years ago. And this
22 laboratory is about as good as you're going to get
23 in the world in a university on measuring these
24 very very low emission vehicles.

25 Go ahead, next slide. And we also --

1 I'm sorry for this -- we also built a 48 transform
2 infrared spectrometer. That's a fancy word for a
3 analytical instrument that you can put in the
4 backseat of a vehicle with some exhaust
5 conditioning and drive it on the road and actually
6 measure the emissions in real time as you're
7 driving in traffic.

8 And that was important for us because we
9 wanted to know how typical traffic did, what the
10 emissions would look like.

11 Next slide. We had a whole slew of
12 vehicles that meet ULEV and PZEV standards. We
13 got these from customers, gave them -- either
14 there or we got some of the lower mileage from
15 automobile rentals. And notice there were only a
16 few. This was our first fleet. We're adding
17 higher mileage vehicles now up above the 50-,
18 100,000 miles. But that was one of the concerns
19 we had with these vehicles continually to perform
20 the way I'm going to show you in a little while,
21 with high mileage.

22 Next slide. Now, this is -- I'm just
23 going to summarize the results because I only
24 have, you know, a few minutes. But this is what
25 we did. Here's the standard for ULEV and PZEV.

1 This was the measured maximum of any one single
2 car that we had in the fleet on any one single
3 test. And this is the average of those vehicles.

4 And unlike that slide that I showed you
5 in the beginning, these vehicles now are below the
6 standard and maintaining below the standard with
7 higher mileage vehicles. This is a major
8 technical accomplishment, major technical
9 accomplishment for those of us who have been
10 around for a long time. Mike and Jim and all,
11 would know how impressive these are.

12 Next slide. We then compared them to
13 the models of EMFAC, the CARB emissions. And we
14 found for the most part that in some instances
15 that we were a little bit above on the PZEVs, what
16 EMFAC was saying. But overall we got reasonable
17 consistency. Here's the measurements; this was
18 the EMFAC measurements of what we had. But we
19 needed to adjust those and readjust EMFAC so we
20 could do the air quality modeling that we had.

21 Next slide. Now, that was the FTP
22 certification. Now I'm going to show you numbers
23 that are from the onboard emissions measurement
24 system that we had in these vehicles on the road.
25 And these numbers are truly impressive.

1 Here is the standard for ULEV and
2 SULEVs, .045 grams per mile for nonmethane
3 hydrocarbon. Here the PZEVs, this is at .01.
4 Look at that we're at .0005 or less.

5 Occasionally, there were two vehicles
6 that had slightly higher emissions, and we now
7 went in and looked at why. You had a little
8 hiccough, and you can get these, and we understand
9 that. But overall, on the road, these vehicles,
10 this has a profound impact on toxics and other
11 issues for the gas phase species. These vehicles
12 were substantially below the standard, as well as
13 almost zero.

14 Next slide. Here it is for carbon
15 monoxide. We did a study for Ford, on their 100th
16 anniversary, of the 1975 T-Bird and a few others
17 were 100 grams per mile. These numbers on the
18 road now for these cars are at .6, .2, .3, they're
19 in that range; essentially zero. It's incredible.

20 In fact, this vehicle, when you drive it
21 -- these vehicles, when you drive them on the road
22 in L.A., we showed actually cleans the air on some
23 of the congested environments that we have. Honda
24 wanted us to do that desperately and we did, and
25 we got it published. It was good.

1 Next slide. Here it is for NOx, same
2 thing. So these vehicles on the road were truly
3 impressive.

4 Next slide. Now, we also -- now we just
5 did gas phase, we started to initiate a program on
6 PM mass, the particulates, for several reasons.
7 We did it actually to look at particle number and
8 nano particle size distribution. But I wanted to
9 share with you, here is two small fleets of
10 vehicles, three vehicles.

11 We have to do multiple tests because the
12 mass is so low. The standard for California is 10
13 mg per mile. This is the number you should look
14 at actually below 1, 1 mg per mile. That is good
15 because that's going to eliminate the automotive,
16 the light duty gasoline vehicle from the
17 particulate, direct particulate emission in the
18 equation hopefully.

19 Next slide. So, we were able to
20 demonstrate these low mileage, and other than that
21 we have higher miles that consistently perform on
22 the road with very very low emissions. The
23 vehicles are different. The current policy model
24 predictions, for the most part, but they're
25 actually, in many instances, lower. The air

1 quality modeling indicates the use of these
2 vehicles in large numbers could help the air
3 quality attainment. I'll show you a slide on
4 this.

5 And the other thing that I think is
6 important to say is that the impact on air
7 quality, on alternative fuels, ethanol, propane,
8 natural gas. And these cars, for the most part,
9 are ethanol ready so that there's not going to be
10 this issue about permeation and whatever on these
11 cleaner cars when they get into the fleet. I
12 think that was said this morning.

13 Essentially it's diminished to zero.
14 That doesn't mean that you don't go after
15 alternative fuels. But from my perspective, as
16 these vehicles enter the fleet, and by the year
17 2010 it's projected that almost 25 percent of the
18 fleet will be these. And by 2020 you almost have
19 turned the fleet over.

20 But the air quality ozone impact and
21 particulate impact is a push. It doesn't matter
22 what fuel. And most of these cars are ready for
23 any percentage of ethanol that you've got.

24 Next slide. The PM situation that we
25 had, and this is -- I was just in Korea and they

1 asked me to start looking at low particulate
2 diesel light duty vehicles. But they've got to
3 get to 1 mg or less or you'll have a negative
4 impact with diesels. Remember that. Irrespective
5 of the global warming impact, which will be less.

6 PM emissions are mostly lubricant that
7 you get. It's organic and you can look at it.
8 We've done. But we got to look at more research
9 on the part of those four particle numbers. These
10 are very very low, they're essentially zero. But
11 I think it provided the first step in the process.

12 Next slide. Now, we've done some, just
13 to show you, the PZEV emission rates compared to
14 the fleet in 2000. Here's going to be an average
15 PZEV which is the SULEV with evap essentially.
16 And here are the emissions that we observed now
17 with measured PZEV emissions. They're
18 substantially lower.

19 One of the things that I think needs to
20 be addressed is can we effectively aggressively
21 increase the introduction of these vehicles into
22 the fleet to reach attainment for ozone. And
23 there may be all kinds of ways of doing it. And
24 given that these are mostly better fuel economy
25 vehicles, it may be that \$62 a barrel for oil may

1 help do that.

2 Next slide. But we've looked at this.

3 Now, here's what -- we did some modeling. This is
4 the same L.A. basin. This red area is where, in
5 2010, all the stress is about. The rest of the
6 basin is attainment or pretty much so. There's
7 only one area in the far eastern portion, up in
8 the mountains, that's going to be nonattainment.

9 This is with that 15, 18 percent
10 introduction of these extremely low emitting
11 vehicles. If you increase that to a major portion
12 of the fleet you can eliminate the ozone problem
13 in L.A. by 2010. It can't be done, but it's
14 possible if you had the technology is there.
15 That's what we're saying.

16 Next slide. So, the most important
17 technical finding, I think, is that these cars are
18 operating well below their certification levels.
19 It's true for both laboratory measurements and
20 real world. It's a combination of advanced
21 catalyst technology, enhanced fuel metering
22 technology. But it's enabled by clean fuels. And
23 clean fuels of ethanol, natural gas and others is
24 defined here, as well as gasoline. We used this
25 thing with gasoline.

1 Next slide. Now, so I just want to say
2 that extreme low emitting can operate on alcohol
3 fuels. It was brought up. There's some people
4 here hopefully from the automotive industry that
5 can confirm that. As well as gasoline without
6 modification.

7 So if you go to E-20, if that's what you
8 want, I think most of the fleets that are coming
9 in, these are already adapted for that. And it's
10 not going to be that much of a problem. This
11 thing about permeation is going to disappear
12 quickly. In the short term there's a problem, but
13 those cars are getting off the road.

14 So the environmental impact is
15 independent of the fuel to some extent. And I
16 believe that the main driver for alternative fuel
17 should be energy independence. That's a passion
18 of mine now. And global climate change.

19 And it's this reason why we have the
20 main driver in California. And I think we
21 actually should become more aggressive in
22 development of clean alternative fuels in
23 California. And, as I said, there's a lot of
24 processes now that can take agricultural biomass
25 feedstock and convert it to these clean fuels at

1 very low prices. And so we need to look at this
2 and become more aggressive in doing that.

3 And other than that, I can answer any
4 questions. Thank you.

5 COMMISSIONER BOYD: Thank you, Joe. One
6 question. Earlier in your presentation you gave
7 credit to OBD, onboard diagnostics. And I was
8 agreeing with you. It's the standards in concert
9 with onboard diagnostics and the extended
10 warranties, in my mind, that have assured cars
11 perform over the long haul. Whereas in the old
12 days you were dependent on things like inspection
13 and maintenance to catch these. And that was
14 always a political hot potato, so. Do you agree,
15 that's pretty --

16 MR. NORBECK: Yes, sir, I agree with
17 that. And I'm hoping that the future, you know,
18 the INM program, it's alive and well, and it's
19 necessary that we look for these, you know,
20 occasional hiccoughs. But there's got to be a way
21 in which we can reduce the cost to the consumer on
22 inspection and maintenance in the state and
23 everywhere else. Because they're disappearing
24 now, these cars are staying cleaner much much
25 longer and better.

1 COMMISSIONER BOYD: Onboard diagnostics
2 could do it, but --

3 MR. NORBECK: Yes, sir, I think so.

4 COMMISSIONER BOYD: -- when we ventured
5 into --

6 MR. NORBECK: -- it's going to be a
7 challenge.

8 COMMISSIONER BOYD: When we ventured
9 into that field it was too Big-Brotherish for most
10 politicians.

11 MR. NORBECK: Yeah.

12 DEPUTY EXECUTIVE OFFICER SCHEIBLE: Joe,
13 thank you. I think we agree that the future looks
14 really good in terms of vehicle technology and
15 their ability to maintain very low emissions and
16 use. Of course, we have to get there.

17 And right now we do two things with our
18 fuel. One that we design the fuel standards so
19 that they protect the emission control systems in
20 the car And I presume, from your remarks, it's
21 vitally important that we continue to do that part
22 of it.

23 And secondly, we have fuel standards
24 that are designed to reduce emissions as much as
25 possible from the end-use fleet. And our view is

1 that's very important until we get to the point
2 where these cars not only dominate by number, but
3 there are so few older vehicles out there that
4 their emissions contribution is small. Would you
5 have any difference with that philosophy?

6 MR. NORBECK: No, absolutely not, Mike.
7 I think it's the leading important thing that we
8 need to do. I'm doing a lot of work, and we're
9 doing a lot of work in Asia now, CeCERT is,
10 looking at this.

11 There's no way that you'd do a
12 California, you know, low emitting vehicle
13 anywhere else in the world unless you have
14 California fuels. It's a critical, critical part.
15 And I think that was the single most important
16 thing.

17 The other thing is the catalyst
18 technology with the low sulfur. It also is -- the
19 light off time is reducing now to where it's below
20 30 seconds. So, you're eliminating cold start.
21 And they're staying that way.

22 So, okay, any other questions?

23 Hope you've found this useful. Thank
24 you very much for asking me to come, again.

25 PRESIDING MEMBER GEESMAN: Thank you

1 very much.

2 COMMISSIONER BOYD: John, if I might
3 make one comment. Joe mentioned -- and others
4 have mentioned the fact that there are lots of
5 different feedstocks that can produce alcohols and
6 the bio in biodiesel. And we're liable to hear
7 commercial after commercial before we get to the
8 individuals who probably want to make that point.

9 But I just want to acknowledge that from
10 my point of thinking, you know, the bio in
11 biodiesel can be derived from all kinds of
12 different sources. The alcohol in fuels, ethanol,
13 can be derived from all kinds of sources. In
14 California, I think, in particular we're concerned
15 more with some of these other sources, either
16 biomass or, you know, nonsugar, noncarbo, noncorn,
17 i.e., cellulosic in the California wastes.

18 And we have multiple activities
19 underway. I think there was a reference by Dean
20 to the bioenergy working group that this agency
21 chairs. The biomass collaborative at UC Davis. I
22 see (inaudible) sitting out there, heads an
23 organization that's been working on this for quite
24 some time.

25 So just in case there's a concern out

1 there that we don't recognize these things, I
2 think they're well recognized by I know everybody
3 sitting up here, at least the two agencies
4 represented. And I expect to hear more out of
5 people when they give their presentations.

6 But to maybe head off lots of
7 commercials prematurely, why, I just wanted to
8 make that comment.

9 PRESIDING MEMBER GEESMAN: And I guess
10 the one thing I'd add to that is I'm wary of
11 allowing the best to become the enemy of the good.
12 And I've had enough experience in the capital
13 markets to be pretty humble about my ability to
14 pick the best or spot the winners.

15 I would prefer that our policies be
16 oriented to trying to achieve some concrete
17 objectives, environmental and some of the other
18 rationales behind our desire to diversify away
19 from petroleum. And then let the market sort out
20 who ends up being the winners in terms of
21 particular feedstocks.

22 But that's a preemptive commercial, as
23 well.

24 MR. PEREZ: Okay. Before we proceed to
25 the next speaker, which will be the California

1 Independent Oil Marketers Association, I just want
2 to announce to those that are listening that we
3 are getting a lot of feedback and interference.
4 And we'd like to just encourage people to mute
5 their phones out there that are listening via the
6 webcast.

7 So, with that, we'd like to invite Jay
8 McKeeman to please come forward.

9 MR. McKEEMAN: Good morning. I'm Jay
10 McKeeman with the California Independent Oil
11 Marketers Association. Our Association represents
12 fuel distributors in the state. And I'd like to
13 say that we're the lab rats for distribution of
14 alternative fuels in the state.

15 Our members are small, family-owned
16 businesses; but they're also very adept and
17 inventive in terms of looking at markets, and in
18 terms of trying to adapt to changes in the market.
19 So many of our members are currently engaged in
20 distribution of biodiesel. Many of our members
21 have tried CNG distribution and M-85. Wherever an
22 alternative fuel market is a possibility our
23 members are experimenting with their own funds to
24 try to make those markets work and see if they
25 are, in fact, productive and viable markets for

1 them to participate in.

2 My comments are more narrowly oriented
3 this morning. We recently composed a letter to
4 the Air Resources Board. And the issue that we're
5 addressing is the possibility of up to 10 percent
6 ethanol in California gasoline. This is more of a
7 short-term issue in terms of our interest.

8 Basically we are interested in seeing up
9 to 10 percent ethanol in California fuels. But
10 most importantly, we would like to see a CARBOB
11 that allows fungibility. In essence, right now if
12 a CARBOB is produced by the refiner, it's produced
13 to a very specific ethanol content.

14 Most recently Valero increased the
15 amount of ethanol that they use in gasoline, but
16 they had to adjust the CARBOB to allow that to
17 happen.

18 What we're suggesting is that for the
19 marketplace that it would be best to allow one
20 CARBOB to be made and then allow the ultimate
21 vendor of that gasoline to determine the
22 appropriate amount of ethanol that would be
23 allowed in the fuel.

24 We recognize that there are air quality
25 issues involved here, although certainly there is

1 an active debate going on in that arena. And we
2 suggest that the Energy Commission and the Air
3 Resources Board actively explore the tradeoffs
4 that are involved in allowing a more flexible
5 allowance of ethanol in the gasoline.

6 There are three premises that we make
7 this suggestion on. First, under fuel supply, as
8 we all know, we run a very tight fuel supply
9 situation in this state. And the problems that
10 that creates, both in terms of supply and price,
11 are self evident. California is, day-in and day-
12 out, the highest priced gasoline in the United
13 States. So we pay that price on a daily basis.

14 Another issue that has to do with fuel
15 supply is that our members would have access to
16 possibly a variable amount of ethanol that might
17 be able to make up for short-term shortages in
18 specific areas related to the amount of CARBOB
19 that's available.

20 Another issue is that in terms of the
21 tax credit on ethanol, something that we have seen
22 recently there were changes in the way that the
23 ethanol tax credit was administered in taxation
24 and tax collection.

25 Basically there is a tax benefit or a

1 tax credit that goes along with the sale of
2 ethanol, but because of the tight control of the
3 ethanol content by the refiners, basically they
4 are capturing the total benefit of that ethanol
5 tax. And specifically we would have expected to
6 see, when this tax change came into place, some
7 dip in the price of wholesale gasoline. But that
8 didn't occur. In fact, the price has pretty much
9 constantly gone up since that tax benefit was
10 derived.

11 So our members are not basically
12 enjoying any tax benefit out of the ethanol tax
13 subsidy that is there. And with the allowance of
14 our members to be able to determine basically at
15 their locations how much ethanol goes into the
16 gasoline, they could derive a little bit more tax
17 benefit.

18 Finally, the air quality issue is out
19 there. And we understand the issues are difficult
20 with ethanol. Certainly the permeability issue is
21 something that is of concern to us all. And we do
22 understand that the ethanol industry is more
23 effectively engaged in refinement of the
24 permeability issues, or the studies, and we
25 definitely think that's the right thing to do.

1 Also, the ethanol industry, which you'll
2 hear from later today, has some arguments about
3 basically tradeoffs in air quality benefit that
4 relate to the amount of ethanol. But as we
5 understand it, between 5 and 10 percent, there are
6 differing aspects of air quality or emission
7 attributes, but maybe there's some tradeoff in
8 there that would allow greater flexibility in the
9 ultimate composition of ethanol in the gasolines.

10 And that's basically the premise that
11 we're here on. That the more flexibility there is
12 in the marketplace to compose and deliver fuels
13 the better it is going to be for the consumer.
14 Our members typically operate on the low end of
15 the price spectrum in terms of petroleum product
16 sales. We want advantages basically in the
17 marketplace, or at least equality in the
18 marketplace so that we can take advantage of
19 situations.

20 And we believe that increasing the
21 amount of ethanol in gasoline is beneficial in
22 terms of supply, beneficial in terms of our
23 members' economic survival. And as long as air
24 quality questions can be answered, will be
25 beneficial for the state residents.

1 And that's the end of my presentation.

2 PRESIDING MEMBER GEESMAN: Thanks, Jay.

3 MR. McKEEMAN: Thank you.

4 PRESIDING MEMBER GEESMAN: Any
5 questions?

6 COMMISSIONER BOYD: Lab rats, huh, Jay?
7 (Laughter.)

8 MR. PEREZ: Okay, our next speaker is
9 Bob Walker from Swan Biomass.

10 (Pause.)

11 MR. WALKER: Thank you very much for the
12 opportunity to say just a few words today, which
13 actually are a continuation of the talk that I
14 gave last week.

15 And I'd like to start off with what the
16 summary was of the last -- and the context of the
17 questions that you had asked in your memorandum
18 that you put out for this meeting.

19 And summary is that we think that the
20 biomass-to-ethanol approach will be more important
21 even than corn-to-ethanol as we go forward into
22 the future. I gave the reasons last time and
23 they're on the list this time.

24 And that we are in the process of
25 starting up an industry in Imperial Valley using

1 cane-based ethanol. And we're well enough along
2 the way to the point where we have a site. We're
3 arranging for various services. And we are
4 beginning to start making the changes that will
5 bring jobs to that area.

6 What we'll have ultimately for one of
7 the plants if 100 million gallons per year of
8 capacity. And that will be of fuel ethanol, but
9 it will be added to by converting the residual
10 solids into other transportation fuels. So that
11 basically you're looking at something that can
12 produce between 65- and 120-million gallons a year
13 of fuel, or that's how much gasoline that you can
14 displace. And that's addressing your reduction of
15 petroleum imports.

16 The area has the potential for 1.5
17 billion gallons per year of fuel ethanol; and a
18 similar amount of the residual solid produced
19 transportation fuel. And that displaces 1 to 2
20 billion gallons per year of gasoline.

21 Return back to the model that we have
22 for the future, and the biorefinery makes ethanol,
23 collects E-85 hydrocarbons from the conventional
24 refinery blends E-85 fuel for distribution just as
25 we heard the independent marketers talking about.

1 And the other kinds of hydrocarbons that
2 we'll be making will go into conventional gasoline
3 to raise the octane of that, and to provide
4 something that is a compatible hydrocarbon that
5 is, in fact, renewable.

6 I was going to talk a lot about flexible
7 fuel vehicles, but one of the other speeches in
8 the earlier part of the program preempted it. The
9 flexible fuel vehicles are really an answer that
10 allows ethanol to join the portfolio of fuels that
11 you can decide to use in your mixes. A lot of the
12 environmental issues are starting to go away as
13 technology catches up.

14 With the flexible fuel vehicles there is
15 enough flexible fuel vehicle of a fleet in
16 southern California, and this is the Kern County
17 south, that we could use 135 million gallons of E-
18 85.

19 And I thought that it was going to be
20 sort of interesting contribution that flexible
21 fuel vehicles are currently optimized on gasoline.
22 If you optimize them on ethanol you get a
23 significant amount of increase in efficiency.
24 And, in fact, the Saab Company, a Swedish company,
25 is introducing such a vehicle that on the road

1 adjusts its ability to handle fuels. It can go
2 all the way from a hydrocarbon where it has a
3 turbine that it adjusts to. I guess it's about 5
4 pounds pressure for gasoline; and if you put
5 ethanol in it, it'll crank it up to 11.5 pounds.
6 And takes advantage of the additional octane
7 that's in the ethanol.

8 This -- I said it was Saab, but they're
9 really owned by General Motors, so this technology
10 is ultimately going to become available in the
11 U.S. through major competitors in that area.

12 And so the end is that this kind of
13 technology, this ethanol, itself, can make a much
14 more substantial impact on the transportation
15 fuels industry, particularly in California, than
16 has been thought about in the past.

17 And we're developing multiple options on
18 how we can move this, the product into the
19 marketplace. And I noted also that the Energy
20 Policy Bill in Washington that currently has,
21 seems to be better success than it has in the
22 past, has a bunch of benefits that directly hit
23 the California programs.

24 They're talking about increasing, adding
25 money so that you can increase the number of pumps

1 available for flexible fuel vehicles at a lower
2 cost. It's providing some incentives for making
3 ethanol quite competitive with other
4 transportation fuels in the market.

5 So I think we're looking forward to a
6 very bright future for ethanol, and we'd like to
7 help make that happen. Thank you.

8 Any questions or comments?

9 PRESIDING MEMBER GEESMAN: I wonder what
10 your thoughts are as to a critical mass of
11 vehicles necessary to create the adequate fueling
12 infrastructure.

13 MR. WALKER: Well, we actually
14 yesterday, day before yesterday, got the breakdown
15 of flexible fuel vehicles by county that came into
16 the hands of the California Energy Commission.
17 And they shared that with us. That's why I was
18 able to say that there's 61 percent of that fleet
19 that's south of Kern County.

20 PRESIDING MEMBER GEESMAN: Yeah, I'm
21 told, though, that 75 percent of that fleet is
22 owned by members of the public.

23 MR. WALKER: Very well.

24 PRESIDING MEMBER GEESMAN: Pretty
25 dispersed population.

1 MR. WALKER: And the important thing is
2 that in determining what that critical mass is,
3 first of all because California has the highway
4 system that it does, it's easier to get around
5 than it would be, for instance, in a place like
6 Chicago or the Midwest.

7 Second thing that's happened is that the
8 price of fuels that's been tested in the Midwest,
9 the E-85 has a lower cost per gallon. People
10 react to that, even though this really they know
11 that they're getting less miles per gallon, they
12 don't care. The oil industry has proved this time
13 and time again, that the thing that matters is the
14 price at the pump in terms of convincing people to
15 go ahead.

16 So that with the incentives that are in
17 the energy bill, the price of E-85 can be set at a
18 level that is going to be quite comfortable for
19 the producers of ethanol, and attract the
20 customers to drive some to put the stuff into
21 their tank.

22 So, it's lower than it ordinarily would
23 be, but we haven't quantified it yet.

24 PRESIDING MEMBER GEESMAN: Yeah, I'm
25 just trying to figure an appropriate time context

1 to place on this, 249,000-plus, or 250,000-plus
2 vehicles ahead of the hydrogen vehicles. But is
3 somebody going to come and suggest an E-85 highway
4 being necessary to create the appropriate fueling
5 infrastructure?

6 MR. WALKER: Well, I think that the E-85
7 highway will self-produce itself. It will be
8 something that happens because there's profit in
9 it for industry to do so. And it will be a
10 precursor, if there ever is one, to the hydrogen
11 highway, because you are talking about basically
12 ethanol as a vehicle for carrying hydrogen around.

13 And so I can see them compatible and
14 not, I mean either/or.

15 PRESIDING MEMBER GEESMAN: Thank you
16 very much.

17 COMMISSIONER BOYD: This dialogue raises
18 an interesting point, I think Mr. McKeeman brought
19 it up first, but I couldn't get over the lab rat
20 analogy. I mean he talked about his members being
21 down there in the trenches dispensing and
22 delivering fuel. And it is certainly true in my
23 experience that vehicle fueling infrastructure,
24 certainly for liquid fuels, has historically
25 belonged to the oil industry in a very broad

1 generic sense.

2 And so they need to be a player here.

3 And they need something of an incentive. And I
4 don't mean us dipping into our pockets. They need
5 to recognize that there is a profit in the
6 activity for them. Maybe the independents see it
7 more clearly and more rapidly.

8 But somehow or another, to facilitate
9 all this and E-85 and all those vehicles running
10 around not using it, to me, has been, ever since
11 we did the 2003 IEPR, in fact the 2076 report, a
12 huge target waiting to be picked.

13 But, you know, there's going to have to
14 be lots of partners in this to make it work. And
15 I hope the oil industry takes note of that fact
16 and can see their way clear to finding it as a
17 business opportunity.

18 MR. WALKER: Well, Jim, just to follow
19 on on that point, the real carrot, I believe, for
20 the oil industry is that this allows them to
21 increase their marketing capabilities without
22 having to build refineries. And, of course,
23 they're not going to build refineries.

24 We heard last week about building
25 processing facilities off in Bahrain and Saudi

1 Arabia. Think that the course of history is
2 telling us that this probably is -- could be a
3 risky situation. Better to build it here.

4 COMMISSIONER BOYD: I just keep thinking
5 all those mid-grade gasoline pumps and tanks are
6 just waiting for E-85.

7 MR. PEREZ: Okay, our next speaker will
8 be Gary Herwick from the National Ethanol Vehicle
9 Coalition.

10 MR. HERWICK: Good morning. I
11 appreciate the opportunity to speak with you this
12 morning. Especially the combination of both the
13 Energy Commission and the Air Resources Board.
14 And I think also a demonstration of the
15 understanding of this important issue demonstrated
16 by the questions today. So I appreciate the
17 opportunity to speak with you.

18 I want to be clear that I retired from
19 General Motors earlier this year, so I'm not
20 representing General Motors or the Alliance of
21 Auto Manufacturers. I'm here representing my
22 independent company that is noted on the slide,
23 but also the National Ethanol Vehicle Coalition.

24 Next slide, please. Just to kind of set
25 my comments up a little bit, and I think you've

1 heard a lot of these comments already. There are
2 widespread concerns that are outside the State of
3 California, around the world, about greenhouse gas
4 emissions and also petroleum fuel use. Driving
5 consideration of various alternative fuel use
6 throughout the world.

7 The Energy Commission and Air Resources
8 Board Integrated Energy Policy Report, I just want
9 to point out a couple of things, called for a 15
10 percent reduction in petroleum fuel use by 2020.

11 The workshop following the July 2003
12 report concluded that significant penetration of
13 alternative fuels would be needed, in addition to
14 technology solutions. And there's a final report
15 due later this year. AB-1493, of course, calls
16 for substantial reduction in CO2 emissions, as
17 well.

18 Next slide, please. Currently in
19 California more than 900 million gallons of
20 ethanol is used, as 5.7 percent blends. The
21 renewable fuel standard that is under
22 consideration in the energy bill pending in
23 Congress, and looks like it has a pretty good
24 chance of going forward, is likely to require, the
25 point I'll make, is similar quantities to that.

1 In other words, California's share of
2 the renewable fuel standard is likely to maintain
3 high levels of ethanol usage in the state.

4 COMMISSIONER BOYD: Is there going to be
5 a level playing field for all types of ethanol
6 production in that? I mean can the ethanol be
7 derived from any source? I guess I'm getting at,
8 do people, other than corn, get a shot at this?
9 The cellulosity people, the waste people, i.e.,
10 animal, vegetable, mineral wastes, toxics
11 materials and what-have-you. Do they all get a
12 level playing field shot at making that ethanol?

13 MR. HERWICK: I believe they do, in
14 what's comprehended within the renewable fuel
15 standard. And, in fact, I believe there is an
16 incentive of some type within the RFS for
17 cellulose-derived ethanol. I don't have any
18 further detail on it, personally. Perhaps
19 somebody else does here.

20 As has already been pointed out today,
21 the evaporative emissions, due to permeation, does
22 require some mitigation strategies, which the auto
23 industry and so forth have been saying for quite a
24 while.

25 Tailpipe NOx emissions concerns with

1 respect to ethanol blends have limited ethanol
2 blends to 5.7 percent in California. And as Dean
3 has already pointed out the CRCE 67 study will
4 provide specific data on that later, hopefully
5 later this summer.

6 Next slide. This is just kind of a
7 representation that I think addresses some of the
8 questions that have been asked with respect to
9 ethanol blends. The bottom scale is ethanol
10 concentration. And, you know, octane, of course
11 heating value that has to do with the energy
12 content of the ethanol blend. The blue and the
13 green lines are obvious things.

14 But the ones I want to point out are,
15 you know, the vapor pressure and also the
16 permeation emissions. And I think the, you know,
17 the vapor pressure, if it start out at a relative
18 value of 1, takes a bump and goes up to -- goes up
19 at about a 10 percent blend; and then it drops off
20 to where if, for instance, E-85 ends up being
21 quite a bit lower than the base gasoline in terms
22 of vapor pressure that would generate evaporative
23 emissions.

24 In addition to that the permeation
25 emissions, which are separate from that, and this

1 is a bit of speculation, but technical analysis
2 indicates to me and others that the permeation
3 emissions will fall off considerably after we
4 reach a certain level of ethanol percentage in the
5 gasoline, perhaps peaking at around 20 percent and
6 then dropping down to gasoline levels of
7 permeation emissions at around the E-85 level.
8 It's speculation at this point and data will be
9 available later this year.

10 Next slide, please. So E-85 and flex
11 fuel vehicles. Ethanol has the potential to
12 address reductions in petroleum fuel use and
13 greenhouse gas emissions in the near term that
14 have been proposed in California. E-85 and flex
15 fuel vehicles then maximize the use of this
16 ethanol.

17 And as I've already said, based on
18 technical assessment, permeation evaporative
19 emissions may not be an issue with E-85. The
20 CRCE-65 study, which the results are due out late
21 this year, should provide data on that.

22 From the General Motors' sponsored well-
23 to-wheels study of greenhouse gas and energy use,
24 there is a 20 percent reduction in greenhouse gas
25 potential with E-85 made from corn, and a 60 to 65

1 percent reduction potential in greenhouse gas
2 emissions with cellulose-based ethanol.

3 Research also suggests, and this is
4 based on General Motors research sponsored at the
5 University of Toronto, suggests that on a
6 conservative basis 25 to 30 percent of the U.S.
7 fuel pool could be replaced by ethanol from all
8 sources, you know, including biomass sources.

9 Currently in California -- my number's a
10 little bit high compared to some of the others
11 here, so I would say 250- to 300,000 flex fuel
12 vehicles by the end of this calendar year are
13 estimated in the California in-use fleet. And
14 growing, you know, I think it's important to note
15 that currently growing at a rate of about 45,- to
16 50,000 vehicles a year.

17 E-85, as demonstrated by the growth of
18 E-85 stations in other parts of the country, E-85
19 can be cost competitive to gasoline on an energy
20 equivalent basis without subsidies for ethanol at
21 a gasoline price of \$2.20 a gallon, which, of
22 course, we're seeing throughout many parts of the
23 country. So it's representing an attractive
24 business proposition to at least mid-level
25 petroleum distributors throughout the country.

1 Next slide. A couple of slides just to
2 point out, these slides come from the GM phase 2
3 well-to-wheels analysis, which is, the phase 2
4 report has just been published in May. But,
5 similar conclusions to the earlier report which
6 was out in 2001.

7 The petroleum consumption on the left-
8 hand scale of gasoline vehicle as the baseline,
9 given the well-to-tank and tank-to-wheel
10 contributions added together for the well-to-wheel
11 contribution, it's about a 20 percent reduction
12 for a diesel-powered vehicle. And you can put a
13 hybrid vehicle right in there at about the same
14 level.

15 But then corn E-85 and cellulosic E-85
16 have some real potential to reduce petroleum fuel
17 use. It is a near-term alternative available now
18 as opposed to hydrogen which is several years out.

19 Next slide, please. The greenhouse gas
20 emissions potential then of gasoline, diesel --
21 diesel about a 30 percent, 25, 30 percent
22 reduction in greenhouse gas emissions compared to
23 the gasoline vehicle. And you could put a hybrid
24 in there as well, around the 20 percent reduction.

25 Corn E-85 is about a similar reduction

1 in terms of greenhouse gas emissions. But
2 cellulosic E-85 has the real potential to reduce
3 greenhouse gas emissions because of the
4 consumption of CO2 in the process of making
5 cellulosic ethanol.

6 Next slide, please. This is a
7 representation of the General Motors University of
8 Toronto research, which comprehends all sources of
9 ethanol in that 30 percent assessment of the U.S.
10 gasoline pool from corn, from agricultural waste
11 or crop residue, as it's noted in the slide,
12 purpose grown energy crops and municipal solid
13 waste to make up that 30 percent potential. And
14 the research indicates that that is a conservative
15 estimate.

16 Next slide, please. So, on to barriers
17 to E-85 and flexible fuel vehicles in California,
18 then, the focus of this presentation. Development
19 of E-85 infrastructure is currently prohibitively
20 expensive and time consuming due to probably
21 enhanced vapor recovery requirements processing
22 right now. Although there is some hope to get
23 through that process.

24 There's only one retail outlet in San
25 Diego. Currently only research permits are

1 allowed. Widespread E-85 infrastructure obviously
2 would be necessary to comprehend the types of --
3 the quantities of ethanol in the E-85 necessary to
4 address the issues here.

5 Supply and availability of ethanol, just
6 a couple of notes. California would require 3.5
7 billion gallons of ethanol by my calculation to
8 displace the 15 percent of petroleum fuel on an
9 energy equivalent basis. That isn't an
10 insurmountable number, but it is quite a bit more
11 than is currently used in the state.

12 And from my assessment, production of
13 ethanol from cellulose probably within the state
14 would be required to address the greenhouse gas
15 emission reduction targets that have been proposed
16 in the state.

17 Continued incentives are needed beyond
18 2008 when they're due to expire to insure the
19 availability of flexible fuel vehicles nationally.
20 There is added cost in the production of flexible
21 fuel vehicles.

22 And another thing that is probably not
23 widely discussed is that future California
24 emission requirements, PZEV requirements are
25 likely to limit the availability of the E-85

1 flexible fuel vehicles to meet the alternative
2 compliance method for the ZEV mandate. So perhaps
3 some testing procedure modifications could be
4 considered to address that.

5 PRESIDING MEMBER GEESMAN: Could you
6 elaborate on that a little bit? Why you see a
7 potential limit on the availability of flexible
8 fuel vehicles.

9 MR. HERWICK: Currently due to the
10 permeation emissions issue it is impossible to
11 make a zero evaporative emissions vehicle that
12 operates on ethanol, that operates on low level
13 ethanol blends. Comprehending potentially that
14 permeation emissions are lessened greatly at
15 higher concentrations of ethanol. That is perhaps
16 something that could be comprehended.

17 PRESIDING MEMBER GEESMAN: Okay.

18 MR. HERWICK: Does that help?

19 PRESIDING MEMBER GEESMAN: Yeah.

20 MR. HERWICK: Also, probably a barrier
21 is the advancements necessary in cellulose ethanol
22 production technology, although that's probably
23 not an insurmountable one, as well. But there is
24 some development needed in cellulose ethanol
25 production technology. And also I would say

1 development of ethanol production capability in
2 California.

3 One thing that the General Motors study
4 points out is that criteria pollutant emissions
5 from ethanol production is currently somewhat of
6 an issue. However, with production of new
7 ethanol, with setting up of new ethanol production
8 plants, that could be addressed with stationary
9 source regulations. Rather probably could be
10 addressed with the compliance with stationary
11 source regulations.

12 Next slide. So recommendations, then,
13 to encourage increase use of E-85 would be to
14 facilitate the state enhanced vapor recovery
15 regulation permitting process. Perhaps on the top
16 of federal incentives, also. Some state E-85
17 infrastructure incentives.

18 As an example, states throughout the
19 country, Illinois, as an example, that has
20 separate E-85 infrastructure incentives. The E-85
21 infrastructure in just a couple of years has grown
22 from 15 to 50 stations. Although 50 stations
23 isn't a lot, it is a relatively large growth in a
24 short period of time.

25 PRESIDING MEMBER GEESMAN: What type of

1 incentives?

2 MR. HERWICK: It's a tax incentive for
3 the construction of E-85 stations. I'm sorry, I'm
4 not familiar with the specifics of it.

5 PRESIDING MEMBER GEESMAN: If you could
6 submit us that information later it would be
7 appreciated.

8 MR. HERWICK: Okay. I'd be happy to do
9 that. Support for California-based cellulose
10 ethanol production. Perhaps sponsoring research
11 at the universities; perhaps support for a pilot
12 plant, as well, might be helpful. Those are just
13 suggestions.

14 Support continued national incentives
15 for the production of flexible fuel vehicles from
16 the state. And also support for the tax credits
17 that are in the energy bill and the highway bill
18 for the infrastructure development that's
19 currently under consideration in conference.

20 Next slide. So then in summary, at
21 least from my perspective, E-85 represents perhaps
22 the best opportunity to address the goals in the
23 State of California of reducing petroleum fuel use
24 and greenhouse gas emissions.

25 Several barriers must be addressed

1 including infrastructure development, increased
2 ethanol supply and flexible fuel vehicle
3 availability.

4 California cellulose ethanol production
5 capacity would likely be needed. And increased
6 use of E-95 is at least neutral to air quality.
7 So I'm agreeing with my colleague, Joe Norbeck,
8 and would likely help to address permeation
9 evaporative emissions concerns.

10 Thank you.

11 Are there any questions?

12 PRESIDING MEMBER GEESMAN: Thanks very
13 much.

14 MR. BULLARD: I have one question. I
15 was told at a Clean Cities conference by --

16 PRESIDING MEMBER GEESMAN: You're going
17 to have to come up and use a microphone. We don't
18 catch you on the transcript unless you're on a
19 mike.

20 MR. BULLARD: Art Bullard, Biosphere
21 Environmental Energy. I was at a Clean Cities
22 conference and was told by one of the GM
23 representatives and one of the Chrysler
24 representatives on their technology that most of
25 the vehicles since 1990 are easily convertible to

1 flex fuel vehicles, because they changed a number
2 of the fuel line requirements.

3 So I don't know if that was right or
4 not. Since you were from GM maybe you could
5 answer that question.

6 MR. HERWICK: Thank you, I'd be happy to
7 answer that. I'm not sure who you spoke with, but
8 I don't believe that it's practical at all to
9 convert vehicles from standard configuration to
10 flex fuel configuration. There are a number of
11 materials, upgrades and components and so forth
12 that would not make it practical to do that.

13 DEPUTY EXECUTIVE OFFICER SCHEIBLE: I
14 just have one point, too. You mentioned the
15 concern about the ability to get permits for
16 enhanced vapor recovery. We're well aware of that
17 issue and trying to work on a path that allows the
18 use of experimental permits in the short term
19 while we check out material compatibility and
20 other issues.

21 We imagine that the systems on the vapor
22 side should work just fine so long as the
23 materials are compatible with the higher
24 percentage ethanol.

25 MR. HERWICK: Thank you. I look forward

1 to working with you on that. NEVC looks forward
2 to working with the state on those. Thank you.

3 MR. KOEHLER: One quick question, Gary.
4 Could you talk briefly about what the Brazilian
5 car manufacturers have done? Because I heard a
6 presentation from them saying that they're making
7 these flex vehicles now at no additional cost.
8 And so I'm curious to know, since they're the same
9 automakers that make vehicles here, whether that
10 and how that can be transferred over.

11 MR. HERWICK: Thank you, Tom, for the
12 question. Yeah, it depends on your baseline, you
13 know, it depends on where you start from. And if
14 you start in Brazil, they use a range of fuels
15 anywhere from 20 percent anhydrous, 22 percent
16 anhydrous ethanol, all the way up to 100 percent
17 hydrated ethanol, which is -- so that's kind of
18 the baseline that you start from. So every
19 vehicle that you manufacture has to be capable of
20 operating on that.

21 However, there are some materials
22 that -- so, in the U.S. things are a lot different
23 where you start from. The cost of manufacturing a
24 flexible fuel vehicle, I would say, is coming down
25 because the auto manufacturers, there have been a

1 couple of technical papers written now about the
2 elimination of the flex fuel sensor, which is in
3 the fuel line. That's quite a bit of -- you know,
4 that's an added cost component on the order of
5 \$100 that can be eliminated by electronics, by the
6 use of the oxygen sensors to calculate a virtual
7 ethanol concentration.

8 However, there are still materials
9 upgrades necessary, as well. And there is some
10 engineering development certification validation
11 costs, as well, you know, that's added onto that.
12 So it isn't exactly the same thing, but the cost
13 is coming down to quite a bit lower than it has
14 been in the past.

15 MR. PEREZ: Okay, our next speaker is
16 Rick Eastman representing Pacific Ethanol/
17 California Renewable Fuels Partnership.

18 UNIDENTIFIED SPEAKER: Biofuels.

19 MR. PEREZ: Oh, Biofuels, excuse me.

20 MR. EASTMAN: Good morning; my name is
21 Rick Eastman with Phoenix BioIndustries, actually
22 affiliated with the California Renewables
23 Partnership. And glad to be a coproducer in the
24 developing industry with Pacific Ethanol.

25 I'm the responsible managing member for

1 Phoenix BioIndustries and in charge of the
2 construction of California's first large-scale
3 corn-to-ethanol plant, currently in the final
4 stages of completion in Goshen, California.

5 Next slide, please. To describe the
6 plant, the plant design capacity is 25- to 30-
7 million gallons per year of fuel-grade ethanol.
8 And we will be processing between 265,000 and --
9 excuse me, we will also produce between 265,000
10 and 315,000 tons per year of wet distillers grains
11 destined to be fed to the local area dairy herd.

12 In conjunction with the 265,000,
13 coincidentally to 315,000 tons per year of corn to
14 be fed to the plant, we will, based on my history
15 in the ethanol business be incorporating various
16 residuals as it is economically feasible in that
17 feedstream. So, making an effort to not only
18 utilize local corn when we can, but also various
19 residual products from the food and beverage
20 industry.

21 The plant is scheduled to start up in
22 August/September of this year, so we are close to
23 completion. I'll go through a couple of
24 construction slides just as a matter of interest.

25 Next slide, please. Our project brings,

1 actually it's closer to 125 new -- construction
2 jobs and 20 new full-time jobs to the Goshen area.
3 The project cost is on the order of \$30 million;
4 and the construction will bring a one-time boost
5 of \$70 million to the state and local economies.

6 The project will generate 345 new
7 permanent jobs and 9 million in additional
8 household revenue through the entire economy, not
9 just limited to our plant construction and
10 operation.

11 The project will generate about a
12 million dollars in new tax revenue for state and
13 local governments.

14 Just an overview of some construction
15 photos. The groundbreaking is late November,
16 December of this year to our current state of
17 close to completion. As I say, we're in the
18 startup phases now and operating systems on water
19 and checking out computers and controls and so on
20 and so forth.

21 Next slide, please. A little levity.
22 The suggestion of management and then the apt
23 ability of one of my staff people created this
24 photograph that was taken in the fog at Goshen
25 installing the tops on the tanks. He was

1 carefully able to erase the rest of the crane and
2 we had fun with it, and then had a difficult time
3 keeping it out of the local newspapers.

4 (Laughter.)

5 MR. EASTMAN: Some additional
6 photographs of the plant in stages of
7 construction. This is the distillation apparatus
8 and various heat exchange apparatus within the
9 plant.

10 Next one, please. And, again,
11 additional construction photos and an idea of how
12 these plants are operated. It's a distributed
13 control system where operators really spend an
14 awful lot of time manipulating all the activities
15 from a control room and a computer.

16 Next slide, please. The critical air
17 issues, I think the most critical is the air
18 pollutant that needs to be addressed and given
19 priority is carbon dioxide. Not backsliding on
20 the carbon dioxide will help drive the better air
21 quality and enlightened renewable fuels policies
22 on both state and federal level.

23 Full fuel cycle analysis has shown us
24 that ethanol reduces carbon dioxide emissions by
25 30 percent when compared to gasoline. California,

1 and I don't think it's coincidental, has had the
2 best air quality on record since the addition of
3 ethanol to all of our gasoline beginning in 2004.
4 Now, that's a pretty broad-based statement, and
5 I'm sure that there are many factors that
6 contribute to that. But the fact does remain.

7 Next slide, please. Our challenge is to
8 establish a robust California ethanol market; 10
9 percent ethanol blends can save California
10 consumers as much as 8 cents per gallon gasoline.
11 E-85 can save California consumers as much as 75
12 cents per gasoline. I think that the E-10 blends
13 are really the best short-term solution to high
14 fuel costs and air quality improvements. And I
15 think that we need to promote that now. E-85 is a
16 good long-term solution to reducing high fuel
17 costs and improving air quality.

18 PRESIDING MEMBER GEESMAN: Let me back
19 you up to the top bullet on that previous slide.

20 MR. EASTMAN: Yes.

21 PRESIDING MEMBER GEESMAN: Could you
22 elaborate a bit on year-round, why that's
23 important to you?

24 MR. EASTMAN: As a year-round producer
25 we would be interested in keeping our production

1 within the state, but not being forced to ship it
2 to other year-round markets.

3 PRESIDING MEMBER GEESMAN: And is that
4 worth more to you than a higher volumetric level?

5 MR. EASTMAN: I think consistent
6 production is -- I don't think -- this doesn't
7 represent a seasonal industry. So, to answer you
8 question, I think it's yes.

9 PRESIDING MEMBER GEESMAN: Okay, thanks.

10 MR. EASTMAN: So, back to a graph, and I
11 think everybody has sort of covered these demand
12 scenarios, and we are at that 900-plus level. I
13 think our ability to go to a 10 percent blend
14 would not only support local production but deal
15 with any industry capacity issues that currently
16 exist.

17 A couple of things that might also be
18 mentioned. The corn that's used in our process
19 is, in fact, a good percentage of that is imported
20 from Nebraska, from the Midwest corn producers.
21 We're affiliated with a large feed mill in Goshen,
22 California. They are currently importing these
23 volumes of corn and dried distillers grains. So
24 we don't really represent any additional corn
25 imports into the state. We're simply converting

1 the materials here, rather than there.

2 I think that concludes my presentation
3 and thanks. I put some contact information up
4 here on the next slide. We are happy to answer
5 any questions.

6 I'm operating Phoenix BioIndustries.
7 Kevin Kruse is the President of Western Milling
8 who is our affiliate partner, and Ejnar Knudsen is
9 the Executive VP at Western Milling.

10 So we're open for any calls to answer
11 any questions. And if there's an interest in
12 seeing the facilities, we'll be starting in the
13 next month or so, and we'd be happy to conduct
14 tours or engage anybody in those sorts of
15 activities.

16 Thank you. Any questions?

17 PRESIDING MEMBER GEESMAN: Thank you,
18 Richard.

19 MR. PEREZ: I just have one question. I
20 notice on each of your slides you have
21 confidential. And we would like to make these
22 presentations available to the public. Is --

23 MR. EASTMAN: That's fine.

24 MR. PEREZ: Fine, okay.

25 MR. EASTMAN: That's fine. I just

1 failed -- that's kind of a template that we just
2 use.

3 MR. PEREZ: Okay, all right.

4 MR. EASTMAN: Okay.

5 MR. PEREZ: Okay, thank you.

6 PRESIDING MEMBER GEESMAN: Question in
7 the back?

8 UNIDENTIFIED SPEAKER: Yeah, I was just
9 curious. What do you do with your dried
10 distillers grain?

11 MR. EASTMAN: We don't -- we produce wet
12 distillers grain. And --

13 MR. PEREZ: -- microphone, please.

14 (Parties speaking simultaneously.)

15 PRESIDING MEMBER GEESMAN: You got to
16 get the mikes, I'm sorry.

17 MR. EASTMAN: Excuse me. We're not
18 drying grain. We're selling everything as a 35
19 percent solids or 65 percent moisture wet feed,
20 and it goes to the area dairies. We're probably
21 smack in the center of the largest concentration
22 of dairy cows in the world.

23 UNIDENTIFIED SPEAKER: So you feed it to
24 dairies?

25 MR. EASTMAN: Feed it to the dairies.

1 UNIDENTIFIED SPEAKER: (inaudible)

2 diesel?

3 (Laughter.)

4 MR. EASTMAN: I'm listening.

5 MR. PEREZ: Okay, our next speaker is

6 Mike Jackson from TIAX.

7 MR. JACKSON: Good morning,

8 Commissioners and Advisors.

9 PRESIDING MEMBER GEESMAN: Good morning,

10 Mike.

11 MR. JACKSON: Not the right one, Dan.

12 Different fuel today.

13 (Laughter.)

14 MR. FONG: Which one is it, Mike?

15 MR. JACKSON: Cal ETC presentation.

16 Thank you.

17 My name is Mike Jackson; I'm a Senior

18 Director at TIAX. TIAX is an engineering/

19 consulting firm based in Massachusetts with west

20 coast offices in Cupertino and Irvine. And part

21 of my responsibility is to manage the west coast

22 offices here in California.

23 And we, under different corporate

24 ownership, have been involved with looking at

25 cleaner fuels, cleaner technologies for some 30-

1 odd years, trying to improve both our -- reduce
2 our petroleum dependency and improve our air
3 quality here in California.

4 What I want to talk about today is some
5 of the benefits of electric transportation and
6 good movements technologies.

7 Next slide, please, Dan. What I want to
8 do is go through the scope of a study that we
9 recently performed for Cal ETC. Some of the
10 applications we've considered in this study; some
11 of the aggregate results. And I realize they're
12 aggregate results and that there's a lot more
13 detail in the reports that will be provided to
14 you. And then some summary remarks.

15 First of all, sort of the scope of the
16 study. We estimated the benefits of various
17 electric technologies and a variety of end-user
18 applications. So we didn't necessarily focus only
19 on onroad, we also included offroad. And that's
20 one of the themes I want to talk about here is
21 that you need to look at the low-lying fruit in
22 terms of reducing petroleum dependency. And they
23 may not just be in the onroad sectors. So
24 something to think about.

25 This study was performed for the

1 California Electric Transportation Coalition. It
2 was an update of the study that we did on the west
3 coast as Arthur D. Little, which is the report
4 title is shown there.

5 The previous study was updated to
6 increase the number of applications we looked at;
7 to estimate the electric demand and emission
8 benefits, specifically for NOx, ROG, greenhouse
9 gas emissions and particulate matter. And also to
10 estimate what the petroleum reduction would be.

11 The methodology included looking at what
12 we thought were the various populations for the
13 various end-user segments in 2002. And then
14 estimating, based on best judgment, what might
15 happen to those segments as you went to 2010, 2015
16 and 2020 for two scenarios. And the results I'm
17 going to show you are for these two scenarios.

18 One is the expected, sort of organic
19 natural growth; and then that associated with
20 current regs and/or incentive programs. And then
21 the second one which would be more achievable is
22 saying, hey, if you want to really push
23 aggressively on zero emission technologies, what
24 would you possibly get to without potentially
25 affecting the California economy, itself.

1 So, next slide kind of gives you an idea
2 of the various technologies that were included,
3 the various segments. Some of these are very
4 familiar to you. Truckstop electrification; ports
5 in terms of cold ironing; port cargo handling
6 equipment; airport ground support equipment.

7 And then if you move over to the next
8 column, electric sweeper scrubbers; some of these
9 are cordless, some of these have cords to them;
10 electric forklifts people have talked about in the
11 past. And then as you move down that list you get
12 into the more of the full-sized battery electric
13 vehicles, city and neighborhood vehicles that
14 we've talked about before.

15 And then there's two last ones, which is
16 the plug-in hybrid technology which is technology
17 that looks promising, although no OEM has picked
18 it up yet. Daimler Chrysler is starting to look
19 at this more seriously. And there is a large
20 number of studies looked at the potential benefits
21 of plug-in hybrids.

22 And then you might be surprised by
23 having hydrogen fuel cells there, but to compress
24 the hydrogen you need electricity. So you need to
25 count that, too.

1 The next slide gives you an idea of just
2 some of those applications. So you go from the
3 fuel cell to a sweeper to cold ironing on ships,
4 to electric trucks -- truckstop electrification,
5 to lift trucks, to burden carriers.

6 So, now some of the results, and again
7 they're in aggregate, and the full results are
8 given -- have been given to your staff, at least
9 in preliminary form. And we expect to provide you
10 with the final form very shortly.

11 Again, what's shown here is the
12 populations. Now excluded in this lawn and
13 garden, which although important in terms of
14 population, are large like 7 or 8 million, from an
15 emissions point of view they're fairly small. So
16 if I put the lawn and garden on this particular
17 chart, it would overwhelm everything.

18 Today there's about 300,000 or so of
19 these pieces of equipment out there. If nothing
20 else happens, there's no other divers, you
21 probably grow that to maybe 7 -- maybe 400,000 or
22 something like that.

23 You can see that if you -- the expected,
24 with the current regulations, pushes that up in
25 2020 timeframe to about a million pieces of

1 equipment. And it's possible, in our view, that
2 you could push that up to the tune of about 4
3 million in 2020 timeframe.

4 What does that all mean in terms of
5 emissions? If you look at the possible expected
6 and achievable ROG and NOx combined emissions and
7 then the PM emissions, so this chart has two
8 scales to it. The left-hand side is the NOx plus
9 ROG in terms of tons per day. The right-hand side
10 is PMs in terms of tons per day.

11 Now, let's just put that a little bit in
12 perspective. This is compared to an average fleet
13 vehicle in the mix based on the latest ZEV
14 document that ARB put out.

15 The numbers that Dean Simeroth showed
16 this morning for hydrocarbons, all the California
17 fuel regs for hydrocarbons are about 400 tons per
18 day, for NOx were about 199, and for PM were about
19 21. Here we're talking about a small segment of
20 electric vehicles providing nearly 10 percent of
21 those kind of numbers. So this is not
22 insignificant in terms of reducing the emissions
23 from some of these pieces of equipment.

24 Something to keep in mind here is you're
25 not necessarily dealing only with the onroad

1 fleet, which is getting cleaner and cleaner. The
2 offroad is five or six years behind in terms of
3 where the emissions are. So this is an area that
4 is sort of low-lying fruit to pick at.

5 If you look at the next chart this gives
6 you what's possible in terms of greenhouse gas
7 emissions. And again, it's emphasized. The
8 expected is shown on the left. The achievable is
9 shown on the right. In the 2076 analysis
10 petroleum dependency study doubling fuel economy
11 gave you roughly about 100 million tons of
12 reduction per year. So, again, these numbers are
13 not necessarily insignificant compared to what
14 you'd expect out of those fleets.

15 The last chart I'm going to show you is
16 petroleum displacement. Again, you have what is
17 expected on the left-hand side, and what is
18 possible on the right-hand side. Again, to put it
19 in context, doubling fuel economy in the petroleum
20 2076 report was on the order of 10 billion gallons
21 per year. Here we're talking again, for these
22 kind of things, if you push the technology fairly
23 hard, on the order of 2 billion gallons. Still a
24 big number.

25 So, in conclusion -- that last slide,

1 Dan -- the study indicates that electric drive
2 technologies offer combined benefits of reduced
3 criteria emissions, reduced greenhouse gas
4 emissions and reduced petroleum consumption.

5 We see electric drive technologies as a
6 viable component to a portfolio to reduce
7 emissions and petroleum use. It's not a silver
8 bullet. It's not the only answer. But there are
9 going to be places where this is going to make a
10 lot of sense.

11 Today's electric drive technologies
12 compete well in markets that are shown here, lift
13 trucks, lawn and garden, personnel carriers,
14 sweepers, scrubbers. Markets that could have a
15 substantial impact include the light-duty plug-in;
16 and the evolution and development and
17 implementation of fuel cells vehicles; Etruck
18 refrigeration units; TRUs; truckstop
19 electrification; and port equipment and other
20 large nonroad applications.

21 So, again, I think it's important not
22 only just to look at the onroad in terms of
23 focusing on where you can get petroleum reduction,
24 but I think you need to start looking at other
25 classes of equipment that include nonroad

1 equipment that also have substantial possibilities
2 of reducing emissions of criteria pollutants,
3 greenhouse gases and petroleum use.

4 Thank you for your consideration, and
5 I'd take any questions.

6 PRESIDING MEMBER GEESMAN: Mike, could
7 you submit your full study to our docket?

8 MR. JACKSON: Yes.

9 COMMISSIONER BOYD: Mike, first thank
10 you for -- I was unsure from the agenda what you
11 were going to be talking about, so thank you for
12 talking about my old friend, electric vehicles.

13 Plug-in hybrids. Could you talk just a
14 little bit more about that technology potential?
15 It's been around a long long time, as you
16 indicated. It just hasn't scored. But with the
17 passage of years the technology seems to get
18 better and better. Our friend at UCDavis has
19 never abandoned his crusade there. And just what
20 kind of a market potential do you see for that
21 technology?

22 MR. JACKSON: Yeah, sort of the major
23 barrier to me, Commissioner Boyd, has always been
24 the OEM's willingness to take on that technology.
25 And, you know, I see a couple of issues with that.

1 One is for the plug-in hybrid to sort of
2 give you, and maybe you can get more incentive in
3 terms of your vehicle architecture, but for the
4 plug-in hybrid to give you the benefits you're
5 going to need to have sort of a option where you
6 can do all electricity. If you're going to do all
7 electricity that means the motors have to be sized
8 to give you the vehicle performance presumably
9 that you would expect if it was running on
10 gasoline only.

11 So those kind of compromises get tricky.
12 And also the issue on costs associated with
13 upsizing everything to give you that kind of
14 performance get kind of tricky.

15 Now, the vehicle manufacturers might be
16 able to get somewhat innovative to do that. And
17 from my perspective they've taken, you know, from
18 a hybrid point of view they've taken only a first
19 step. They may need now to take another step and
20 look at this in more detail.

21 The advantages of being able to have a
22 vehicle that you can fuel at home I think has been
23 proven through the ARB's EED program. I mean that
24 was one of the major things, from a consumer
25 perspective, that was an attribute that raised to

1 the top of the list. Not having to go to a
2 fueling station, you could plug in at home.

3 You've seen how the auto manufacturers
4 have sort of dealt with that. They're basically
5 saying you don't have to plug in anymore with the
6 hybrid. So they've kind of worked that to their
7 sales perspective.

8 If you can, you know, we've done studies
9 over and over again of what the average commute is
10 in California. And we're talking probably less
11 than 20 miles per day. So if you do a HEV-20 or
12 an HEV-50 that covers a lot.

13 And then you have yet the ability to go
14 wherever you want to go, which has always been a
15 problem with these alternative fuel vehicles, is
16 that range always constrains you.

17 So there's lots of advantages; just that
18 major hurdle, can we have an architecture of the
19 vehicle, can we have the hardware of the vehicle
20 that is going to sort of push the whole technology
21 along. And I think EPRI is working very hard on
22 this. And they do now have Daimler-Chrysler
23 involved in putting together prototypes. It's
24 kind of a wait-and-see.

25 I have just one more comment on this,

1 and that is, as you know, the Energy Commission is
2 involved in sort of a major study to look at the
3 alternative pathways of where energy sources ought
4 to be used. Is it better to move electricity into
5 the transportation market. Is it better to have
6 natural gas to go to hydrogen to go to the
7 transportation market. Plug-in hybrids will be a
8 major part of that study, and we expect to have
9 some of those results coming out in the next six
10 months or so.

11 I'm sorry for the long-winded answer.

12 COMMISSIONER BOYD: No. Thanks.

13 DEPUTY EXECUTIVE OFFICER SCHEIBLE:

14 Mike, two questions. One, did you, in your study,
15 get deep enough in the information to produce cost
16 effectiveness estimates?

17 MR. JACKSON: We did not do that this
18 time, Mike.

19 DEPUTY EXECUTIVE OFFICER SCHEIBLE:

20 Okay.

21 MR. JACKSON: I mean we have -- what we
22 did was look at the areas where we thought, you
23 know, we looked at each market segment, broke down
24 each market segment. And then we looked at those
25 market segments that actually had significant

1 market share already. Didn't increase them as
2 much as what we would increase the other ones,
3 other market segments, based on our best judgment
4 of those kind of issues, without going through the
5 details.

6 DEPUTY EXECUTIVE OFFICER SCHEIBLE:

7 Okay. And then the areas where there's already
8 significant penetration of electric technology and
9 it's competing directly with the others, did you
10 do an assessment of whether they're up against a
11 logical, natural barrier? Or if it's inexplicable
12 why 20 percent of the sales are electric and 80
13 percent are some other technology?

14 MR. JACKSON: It wasn't done in any kind
15 of detail, but I mean you get into places where
16 range, or let's take the forklift market, for
17 example. Where, you know, some people want or
18 need to have their forklift operated indoors;
19 others don't. So then it's a cost tradeoff.

20 DEPUTY EXECUTIVE OFFICER SCHEIBLE:

21 Thank you.

22 MR. JACKSON: So those kind of issues
23 are there.

24 COMMISSIONER PFANNENSTIEL: One other
25 area. Some of your equipment, most of it, I

1 think, would be plug-in kind of equipment or would
2 get the electric supply from a utility grid
3 source.

4 So did you do any tradeoffs on
5 emissions, for example, from the electric
6 generation that would be required?

7 MR. JACKSON: Yeah, the emissions that
8 are counted here is the delta emissions that would
9 come from the electric generation grid. And what
10 you would get versus the technology, the competing
11 technology.

12 COMMISSIONER PFANNENSTIEL: Great, so
13 that would be geographically regionally specific?

14 MR. JACKSON: Right.

15 COMMISSIONER PFANNENSTIEL: Great, thank
16 you.

17 PRESIDING MEMBER GEESMAN: Thanks, Mike.

18 MR. ALTSHULER: Just a quick question.
19 Do you agree with the concept that as you
20 introduce ETC for electric technologies now, you
21 get immediate benefits from the reduction in
22 pollution, but as you go forward and you use more
23 renewables and more efficient power plants, that
24 you pay more and more dividends into the future?
25 Do you agree with that concept?

1 MR. JACKSON: Yeah, I think I agree with
2 that.

3 (Laughter.)

4 MR. JACKSON: I might also mention, and
5 that wasn't necessarily -- I think it was brought
6 up just a little bit in the previous presentation,
7 but emission benefits we're talking about here are
8 full fuel cycle emission benefits, not just
9 tailpipe emission benefits, as I think that was
10 the point of your question.

11 PRESIDING MEMBER GEESMAN: Quick
12 question.

13 MR. SHAFFER: Hi, Mike, how are you?
14 Steve Shaffer, Department of Food and Agriculture.
15 Since David Morris isn't here, I'll ask the
16 question. Are you looking at FFE technology in
17 your analysis and incorporating that into the
18 hybrid electric?

19 MR. JACKSON: Well, that could be done.
20 It wasn't done here just yet. Another potential
21 fuel.

22 PRESIDING MEMBER GEESMAN: Thanks, Mike.
23 You're done.

24 (Laughter.)

25 MR. PEREZ: Okay. Our next speaker is

1 Mike Eaves, National Gas Vehicle Coalition.

2 MR. EAVES: My name is Mike Eaves,
3 California NGV Coalition. Good morning. It's my
4 pleasure to be here this morning to address you.

5 When I looked at the notice for the
6 workshop it asked us to look at air quality issues
7 and supply issues, and some barriers.

8 So, first I'd like to talk about the
9 emissions. Go ahead, two, yeah; next one. This
10 is a slight commercial in terms of air quality.
11 This is where natural gas vehicles on the heavy
12 duty side have been pioneers in leading the low
13 emission charge in California.

14 And I'm not going to read down this list
15 and everything, but it's important probably to go
16 down to the last bullet and everything. Is that
17 our industry is on schedule to deliver 2010
18 standards on the heavy duty side by 2007.

19 Next slide. On the light duty side
20 we've also achieved a number of firsts. We were
21 the first ones to come up with ULEV emissions. We
22 actually created the need for a SULEV category
23 because of the low emissions that we had on
24 dedicated natural gas vehicles.

25 We introduced the concept of ILEV or no

1 evaporative emissions. And we were the first to
2 achieve SULEV emissions.

3 Next, please. So we've been putting
4 down pressure on CARB and EPA standards. We've
5 been forcing diesel and gasoline to respond. And
6 natural gas is achieving the largest net benefit
7 in emission reductions by addressing high fuel use
8 fleets in both the heavy duty and light duty
9 market.

10 So, what's the issue on air quality and
11 potential fuel standards. We don't believe in any
12 relaxation of standards from the air quality
13 standards and everything to accommodate fuels.
14 And we've gone on record in the ARB's venue,
15 looking at the transit rule and everything to, you
16 know, to lobby hard for not rolling back some of
17 the emission requirements that they've got there.

18 And we've also been working with CARB to
19 introduce the statewide fleet rules for South
20 Coast. So, like I say, we're not looking at
21 making any type of accommodation for emissions and
22 everything to accommodate the fuel.

23 Let's take a look at the fuel quality.
24 Dean did a good job in reflecting on the history
25 of the CARB natural gas fuel specs. Natural gas

1 fuel industry was really advocating all the way
2 through the '90s a broader commercial fuel spec
3 than was adopted in 1992.

4 In 1998 we recommended going to a
5 methane number of 73 standard statewide; and that
6 would allow natural gas development in the Central
7 Valley and the Central Coast to have high Btu gas.
8 That was kind of a regional issue at that time.
9 We did not see any detrimental impacts on lowering
10 the standard, and the impacts on emissions. But
11 there was a potential impact on older vehicle
12 technologies.

13 So if you take a look at the issues with
14 engines, the older, heavy duty engines couldn't
15 accommodate a lower methane number of fuel. And
16 it was an issue of survivability of the engine,
17 not the emissions of the engine. Although
18 emissions become academic if your engine is gone.

19 But the newer technology that's on the
20 market today can accommodate a methane number down
21 to 65. That's because the manufacturers are
22 producing world engines for everywhere in the
23 world.

24 But we still have a legacy fleet issue.
25 Back when we were lobbying CARB to come up to

1 lower the fuel spec for California to accommodate
2 Central Valley -- Central Coast and San Joaquin
3 Valley, we had probably a legacy fleet there that
4 we had to address of about 50 vehicle.

5 But now with LNG terminals coming
6 onboard, we have a legacy fleet of maybe 3000 to
7 4000 heavy duty vehicles. And there are issues
8 about whether you can retrofit to accommodate the
9 fuel, or replace them, and the costs associated
10 with that.

11 Now, I'll tell you, years ago in the
12 late '90s, the cost to address that 50-vehicle
13 legacy fleet was about \$1.3 million, and nobody
14 could agree to do that. The cost to upfit the
15 legacy fleet now in California, probably, you
16 know, it may be \$100 million, or could potentially
17 be less than that. But the production type
18 implications are in the hundreds of millions of
19 dollars.

20 So regarding supply the issue in the
21 '90s and everything was really California
22 production, local production. And today the issue
23 is potential LNG imports. LNG imports would come
24 in in the south or the west side of the California
25 distribution system, whereas the better, higher

1 quality gas normally feeding California now comes
2 in from the north and the east. And LNG quality
3 and everything will result in localized impacts
4 wherever those LNG terminals are.

5 But there are solutions available now to
6 protect that legacy fleet. The California
7 utilities have been working with the engine
8 manufacturers and there are upgrades available now
9 that were not available, you know, five or six
10 years ago. And that is being costed out by the
11 utilities and the LNG folks to look at the
12 solution for California.

13 I want to touch a little bit on the
14 impact of fuel quality on emissions and give you a
15 briefing on what we've done before. We had the
16 clean air vehicle technology center up here in
17 northern California study the fuel quality issues
18 in the late '90s. And we tested seven heavy duty
19 vehicles, and we tested CARB fuel spec, in
20 addition to a high C3-plus fuel, high C3-plus with
21 inerts, a high ethane composition, three different
22 driving cycles. And we did three tests per cycle,
23 per fuel, per vehicle.

24 We didn't do any testing on light duty
25 vehicles because light duty vehicle manufacturers

1 said that the gas composition is not necessarily
2 an issue with them, with the stoichiometric
3 engines and three-way catalysts. The engine kind
4 of adjusts itself continuously to fuel composition
5 variability. So the issue was really heavy duty.

6 I'm going to show you just four slides
7 and everything, but this first slide is test
8 vehicle number one. It was a school bus; it was
9 model engine 97. The line that is shown there
10 shows what the emission results in the testing
11 program were with a CARB spec fuel. And then it
12 shows the -- the bars show the emission results
13 with the various higher Btu fuels.

14 Now, these are averages, and it's
15 difficult, from the number of testing, to
16 understand whether these are significant
17 variations or not. And you also must realize that
18 this technology is probably two generations ago in
19 the NGV technology.

20 And as we look forward to 2007 heavy
21 duty NGV technology, that technology will
22 essentially be stoichiometric engines using three-
23 way catalysts and everything. So we will kind of
24 mimic the insensitivity to fuel that we typically
25 see with light duty vehicles.

1 So here's one where the commercial fuel
2 spec in the higher Btu fuels achieved elevated
3 levels of NOx. And I'm only going to show NOx.
4 The next one. Here's another one that's kind of
5 comparable across the board. And here's one at
6 lower levels.

7 So you can see there's variability
8 between different engines. You have some engines
9 higher and lower than others. This engine
10 technology tested at this time was probably 4.0
11 gram engine technology. And we're down to 1.2 to
12 1.8 gram technology now.

13 So, if we ran these same tests today
14 would we see the same? I think we've got -- Joe
15 talked about onboard diagnostics. I think the
16 onboard diagnostics are better on heavy duty
17 engines now, and I think maybe they accommodate
18 the fuels better. But that testing hasn't been
19 done.

20 The conclusions of the fuel test
21 composition studies were that low emissions can be
22 achieved with broader fuel composition. And
23 emissions don't have to be sacrificed in terms of
24 natural gas vehicles. We still advocate a broader
25 fuel composition spec even with the 2010 emission

1 standards. And that is really because our
2 manufacturers are really looking at a saleable
3 world product, and I think we're going to be fine
4 on the capability to use a wide range of fuels and
5 still achieve the low emissions.

6 And we're also working with,
7 experimenting with hydrogen CNG blends to further
8 reduce emissions from the legacy fleet.

9 Next slide. Let's take a look at the
10 supply constraints. We don't have supply
11 constraints in terms of manufacturing a product,
12 but we do have potential supply constraints on
13 getting product to California as California has
14 supply constraints getting anything, as much gas
15 as we need to California.

16 California is going to need LNG
17 terminals or they're going to need other pipeline
18 solutions to meet the growing demand in California
19 for natural gas. And that's for all market
20 segments, whether it's power generation or
21 commercial, industrial or residential.

22 Natural gas, as we've said before, has a
23 potential to displace easily 1 to 2 billion
24 gallons a year of petroleum by 2030. Current NGV
25 market slightly under 100 million gallons a year.

1 Equivalent right now represents .4 of 1 percent of
2 California's total sendout of natural gas.

3 At 2 billion gallons a year the natural
4 gas vehicle market equivalent would be 5 to 6
5 percent of today's. And that's reaching a goal 20
6 years out in the future, 25 years out into the
7 future. And you can see there's other gross
8 segments in California that are going to exceed
9 that.

10 Next slide, please. I think all the
11 fuels are at a huge disadvantage when compared to
12 an entrenched competitor, especially one that
13 doesn't necessarily want competition. We do need
14 state policies and incentives to promote
15 alternative fuels.

16 I've addressed before the renewable
17 portfolio standard which said that we recognize
18 there's a higher cost to doing something, but we
19 need it and we found moneys to make that happen.

20 We had two bills in the Legislature this
21 year, SB-757 and AB-1007. Those are both, the
22 1007 is totally kind of gutted and watered down.
23 The Kehoe Bill is still potentially something is
24 there, but, you know, passing state policies to
25 encourage alternative fuels is a difficult

1 process. And I think we need to work on educating
2 the public on why the policies are needed, and why
3 we need consistency across the board between state
4 agencies and regulatory bodies.

5 I point to the policy as a critical
6 thing, because without policy you don't get
7 product; without product you don't get fuel
8 displacement. So policies, as I mentioned in
9 previous presentations, you know, in places like
10 Europe or South America where they have come up
11 with aggressive policies and everything,
12 manufacturers are responding.

13 Next slide, please. I think the natural
14 gas deployment strategy is potentially a model for
15 all alt fuels, and I'm talking about alt fuels
16 that are set aside as not blendstocks for
17 petroleum but actually, you know, maybe there's a
18 B-100 market or E-85 market. You're going to have
19 to identify the right niche markets to penetrate.
20 You're going to have to consolidate your gains and
21 growth, expand your opportunities to other market
22 segments. You need to do that to get product.

23 It was mentioned a little bit earlier
24 today that for E-85 that you can put ethanol
25 blends in flex fuel vehicles and they'll run fine.

1 The question is whether you want to optimize them
2 for emissions or not. And right now the equipment
3 manufacturers optimize strictly for, you know, on
4 their gasoline fuel. They can accommodate other
5 fuels, but, you know, you have to look at that
6 long term if that's going to be a solution for
7 you.

8 And the other thing is on any given
9 vehicle, right now we're doing CARB in its
10 analysis is looking at whether a fuel, you know,
11 what are the fuel specs. But the other issue that
12 probably has to be addressed is are you eventually
13 going to have OEMs certify and warranty their
14 products for different fuels other than gasoline.

15 I'd be glad to answer any questions.

16 PRESIDING MEMBER GEESMAN: Mike, you
17 mentioned early in your presentation development
18 of statewide fleet requirements as a follow-on to
19 the South Coast's unsuccessful effort with the
20 Supreme Court. Where are we in that process and
21 what's your prognosis for it?

22 MR. EAVES: Well, we have -- CARB, right
23 now, does have a process going looking for a
24 rulemaking in the September board meeting for
25 three different rules. One for transit bus, one

1 for refuse and one for school buses.

2 There's a fourth rule that was thrown
3 out on street sweepers, but we think that maybe
4 there's potential to maybe bring that back in.

5 I can't speak for the legal
6 interpretation, but I know South Coast is looking
7 at how they're going to move forward on their rule
8 implementation. But certainly action by the state
9 and everything would make any legal issues a moot
10 point.

11 California does have the authority to
12 create those kinds of fleet rules. And even
13 though they might be under, you know, regional --
14 just a regional implementation.

15 So, we're working hard with ARB and
16 their staff and everything to try to make that go
17 forward in September.

18 PRESIDING MEMBER GEESMAN: Thank you.

19 MR. PEREZ: Okay, our next speaker is
20 Jon Van Bogart, Delta Liquid Energy.

21 MR. VAN BOGART: Good afternoon. My
22 name is Jon Van Bogart and I'm with Delta Liquid
23 Energy. We are a Clean Fuel USA partner here in
24 California. Clean Fuel USA is a propane refueling
25 network that's being developed throughout the

1 United States. And we're developing
2 infrastructure here in the State of California.

3 Next slide, please. I think many of the
4 alternative fuels face similar challenges with
5 fuel supply, vehicle availability and fuel
6 quality. Also government policy faces similar
7 challenges between air quality and the reduction
8 of petroleum fuels and more stringent regulations
9 versus the deployment of alternative fuels. And I
10 think one of the important questions that the
11 Board is asking is how are we approaching a
12 financial threshold where alternative fuel
13 vehicles are no longer viable.

14 In recent years we've seen OEM
15 manufacturers disappear from the marketplace.
16 They have lost millions of dollars trying to
17 produce and market alternative fuel vehicles. And
18 I don't see them returning to the practice very
19 soon. So, small volume manufactures have stepped
20 up to the plate and are certifying vehicles.

21 Next slide, please. As far as fuel
22 distribution and supply globally it's about 111
23 billion gallons. It's going to reach 134 billion
24 gallons by 2010. The current growth in supply is
25 about 2.8 percent a year. The supply trend is

1 expected to increase over the next ten years due
2 to the increase in production of both crude oil
3 and natural gas, of which propane is a byproduct
4 of both.

5 Globally it's about 60 percent on
6 natural gas side and about 40 percent on the
7 petroleum side. Here domestically it's about
8 50/50. The global supply of propane is growing
9 faster than demand which continues to soften
10 propane prices around the world.

11 Next slide, please. Global and domestic
12 supplies of propane are outpacing demands.
13 Historically propane is traded at about 75 percent
14 of crude oil prices; however, today they're
15 trading at about 60 percent due to lower demand
16 than expected and higher supplies. Consequently,
17 propane will keep moving lower in its relationship
18 to natural gas and propane prices.

19 Currently the United States and
20 California export clean-burning, domestically
21 produced propane to Mexico and other markets. So
22 this gives us an opportunity to expand our market
23 with propane in the motor fuel sector.

24 And we are ready, willing and able to
25 work with the Energy Commission and the Air

1 Resources Board to meet current and future
2 emissions standards and also the infrastructure
3 needs throughout the state.

4 Next slide, please. In North America we
5 have a rather unique situation. We are the global
6 clearinghouse for propane. As different countries
7 around the world are producing natural gas and
8 gasoline and diesel from petroleum, the excess of
9 propane comes to the United States because of our
10 vast storage capabilities in the mid continent
11 underground salt caverns. So this also gives us
12 the opportunity to use that fuel, which is a clean
13 alternative fuel, here in the United States rather
14 than exporting it to other countries.

15 Some of the refueling efforts here in
16 the State of California. The CEC and the
17 Department of Energy have funded 29 sites here in
18 California. Some other projects in Texas. We've
19 got some projects going in here in Sacramento;
20 also in Los Angeles.

21 In the latest round of Clean Cities
22 funding we've got projects for the East Bay,
23 western Riverside, and also additional projects in
24 Texas.

25 Propane vehicles have some advantages in

1 that they have similar range, miles per gallon and
2 refueling times as gasoline. Propane vehicles can
3 meet current and future emission standards and
4 consistently are cleaner than gasoline and diesel
5 vehicles.

6 Historically, propane prices at the pump
7 have been about 20 to 30 percent less expensive
8 than gasoline. Today we're seeing that because of
9 the supply and demand. It's about 50 percent of
10 the price of gasoline. And on a diesel-gallon
11 equivalent we're at parity currently with diesel,
12 which is a pretty good thing for alternative
13 fuels.

14 Next slide. Europe is currently
15 converting about 2000 vehicles a day due to
16 government policies, and embracing alternative
17 fuels. Of course, gasoline is \$7 or \$8, maybe \$10
18 a gallon in Europe. And so the consumers are
19 really going for alternative fuels because they
20 don't have all the taxes attached to them as the
21 traditional fuels.

22 In Australia and other countries, the
23 governments are creating partnerships with engine
24 manufacturers and vehicle manufacturers to develop
25 heavy duty and light duty vehicles. Here in the

1 United States, in California we have created
2 market barriers that inhibit AFV production and
3 the deployment due to the high cost of
4 certification, durability testing, warranty
5 accrual and other costs associated with
6 certification.

7 Next slide, please. Current price of an
8 upfit to the consumer is about somewhere between
9 \$9000 and \$12,000. EPA and CARB certification can
10 run anywhere from a half million to \$1 million
11 depending on the technology. Some of the newer
12 technology, there's liquid fuel injected is taking
13 a lot more R&D development. But it is a lot
14 cleaner and is more efficient.

15 We're finding that the 8.1 liter, the GM
16 engine actually gets more horsepower, more torque
17 and better mileage on propane than it does
18 gasoline.

19 With a fuel cost savings of 60 cents a
20 vehicle would need to use about 5000 gallons per
21 year over a three-year period to recover that
22 \$9000 upfit cost. Currently Caltrans propane
23 vehicles only use about 1000 gallons a year. So
24 it's paramount that we develop policies that would
25 help offset the cost of R&D for development, and

1 also the upfit cost of vehicles.

2 Next slide, please. Since the last
3 workshop seven new vehicles for propane have been
4 certified here in the State of California.
5 Baytech has certified the 2500HD and 3500HD pickup
6 and cab chassis. This vehicle certified at a
7 SULEV. And I believe it was .4.

8 They've also certified the medium duty
9 platforms, the Top-Kick and Kodiak platforms, from
10 17,000 gvw up to 37,000 gvw. And also the
11 Workhorse stepvan. This is one of the most widely
12 used delivery vehicles in the United States. And
13 later this fall the 6.0 liter platform for GM in
14 the pickup trucks.

15 And I think GM has really created a
16 great model for OEMs, in that they're producing
17 gaseous pret or alternative fuel upfit vehicles in
18 which you order what is called a KL5 option. The
19 incremental cost to the consumer is less than
20 \$1000. And that vehicle -- they just send those
21 vehicles off the assembly line.

22 Every single one of those 2500 and 3500
23 vehicles have that option to the consumer. And
24 then the upfit manufacturer will upfit that
25 vehicle the same as they would a box truck or

1 transportation vehicle.

2 Next slide. Propane industry support.

3 In 2004 the Propane Education and Research Council
4 commissioned the engine fuel and coordinating
5 committee to create new engine fuel markets, R&D
6 projects, and promote the certification and
7 deployment of propane-powered vehicles and engine
8 platforms. In 2004 and this year some of their
9 RFP projects include the Heno, heavy duty diesel
10 style engine, which is a 300 horsepower engine,
11 and will go up above the 37,000 gvw. Also the
12 GM8.1 low floor glacier bus, which you see in the
13 right-hand corner.

14 Other projects are coming along. In
15 2005 and 2006 the 6 liter GM airport ground
16 support equipment and transportation at airports;
17 the family 2, the family 3 school buses; and
18 public transit platforms. So this is an exciting
19 thing for our industry in the last few years that
20 we have a national cohesive plan to promote and
21 deploy propane powered vehicles in the United
22 States and here in California.

23 Next slide. Recommendations. The first
24 thing I think we all can do, whether we're
25 government or private industry, is support the new

1 energy bill. It's my understanding that I think
2 the highway bill has lost most of its alternative
3 fuel provisions in there, and they're going to go
4 with the Clear Act provisions in the energy bill.

5 This is not a sure thing. Over the last
6 three years we've seen the Clear Act provisions
7 either get watered down or eliminated. And
8 ultimately Congress has failed to push through a
9 comprehensive energy bill. And that's something
10 that we all can support.

11 I think we can create state policies to
12 leverage federal funding with state funding. The
13 SEP projects are a classic example that the Clean
14 Cities program has; that if we curtail our grant
15 funding projects with federal projects we can
16 leverage those dollars.

17 Also previous state mandates for AFVs
18 such as 2076 and SB-1170 for the most part are
19 unfunded mandates. The same with the Pavley Bill
20 and the Kehoe Bill currently working their way
21 through the Legislature. This creates quite a bit
22 of problems for government agencies. In talking
23 with DGS and others, it's very difficult for them
24 to enact some of the things that they get hit on
25 the legislative side. So they need funding, and

1 also personnel.

2 I think the state would be in a very
3 good position like other states and other
4 countries have done in developing AFV support
5 program for OEMs and small vehicle manufacturers
6 that would help assist and offset the cost
7 associated with certifying vehicles.

8 In other words, the state needs to
9 invest in AFV development. Because it's not just
10 about air quality, it's about reducing consumption
11 of petroleum and national security efforts.
12 Creating a comprehensive alternative fuel support
13 program in collaboration with the CEC, ARB and DGS
14 so everyone is on the same page, I think, is
15 imperative. Oftentimes ARB is looking at
16 emissions and CEC is looking at efficiency and
17 displacing petroleum. And I think that together,
18 working with alternative fuel groups, we can work
19 better.

20 Next slide. In closing, market trends
21 favor propane motor fuel economics. It is less
22 expensive than gasoline by about 50 percent, and
23 near parity with diesel. The propane industry has
24 also initiated funding programs and support
25 programs to promote alternative fuel vehicles for

1 propane. Working with the CEC and DOE to fund
2 infrastructure projects. The infrastructure costs
3 for propane is a lot less than some alternative
4 fuels. It's about 10 percent compared to
5 (inaudible) stations.

6 And the propane industry is poised with
7 the really an opportunity to advance propane in
8 the state due to excess supply and industry
9 support now for vehicles.

10 Next slide. This is our contact
11 information. And entertain any questions.

12 MR. PEREZ: Okay, the next speaker is
13 Dr. Gary Whitten.

14 DR. WHITTEN: Good afternoon; glad to be
15 here. The presentation I'm going to make today
16 essentially repeats a lot of what I presented
17 before the California Air Resources Board workshop
18 a couple months ago. The topics are still
19 current, and there's some new spin, or at least a
20 spin that can be taken in terms of today's
21 context.

22 The next slide, please. The four topics
23 I want to cover are, two of which cover carbon
24 monoxide and one nitrogen oxide, and finally
25 permeation issue.

1 You heard this morning that one of the
2 things hanging over the ethanol issue is a need to
3 mitigate the newly characterized permeation issue.
4 And the existing reformulated gasoline structure
5 actually has elements of mitigation for permeation
6 built into it, and that is done through carbon
7 monoxide.

8 So I would say just like permeation is
9 kind of a newly discovered or focused issue in the
10 last couple years, I think there's some points of
11 the mitigating side of carbon monoxide that are
12 also new. And so that even though there might be
13 a permeation problem, the mitigation for it is
14 perhaps better than we thought it was.

15 In regards to some of the things
16 surrounding the nitrogen oxide emissions, you
17 heard a speaker this morning mention that request
18 for more fungible CARBOB one, and perhaps
19 addressing the nitrogen oxide issue and the carbon
20 monoxide issue would make it possible to have more
21 fungible CARBOB here and make easier to use
22 ethanol.

23 Next slide, please. Carbon monoxide
24 emissions are something that increases when you go
25 to a nonoxy fuel, and when the regulations were

1 put into effect the Air Resources Board claimed
2 that carbon monoxide would be reduced when you
3 went to a nonoxy fuel. However, we now have data
4 on end-use nonoxy fuels, and the speculation that
5 was made when the regulations went into place was
6 that the nonoxy fuels would not utilize the RBP
7 ability to reduce emissions that they would have
8 to take into account for nonoxy.

9 But it turns out that that very thing,
10 namely lowering the volatility for nonoxy fuels is
11 what the current fuels seem to indicate was what
12 was done.

13 So the ARB equation that said that the
14 effect of reducing carbon monoxide with oxygen was
15 nonlinear. So that if you went to zero oxygen you
16 wouldn't increase carbon monoxide as much as if
17 you were to go the other way and increase it. So
18 that counteracted a recommendation from the White
19 House Committee in 1997 that suggested, after
20 consideration, they should be linear.

21 Another aspect that's kind of new is
22 that back when the current regulations were put
23 into effect it was assumed that the new technology
24 vehicles that were made from say '95 on would not
25 respond to fuel oxygen. In other words, what they

1 call tech-5. And tech-5, when you put more oxygen
2 in there, there would be no reduction in carbon
3 monoxide.

4 However, a study that came out in 2001
5 shows that the new cars do, indeed, respond to
6 this fuel oxygen. And that would then give more
7 credit for reducing carbon monoxide by the use of
8 fuel oxygen.

9 The ARB still seems to be claiming that
10 there's only about a 3 percent increase in carbon
11 monoxide for going to nonoxy fuel from the regular
12 2 percent oxygen fuels. And fixing some of these
13 things could show increases as high as 46 percent.
14 So, this is a huge difference between what the ARB
15 Staff felt was possible back in '99 when the
16 regulations went in, and what some of the newer
17 data and reevaluations actually show.

18 Next slide, please. I was able to get
19 fuel properties, and I've just discussed that.
20 There's some things like more olefins in the
21 nonoxy fuel and somewhat less sulfur, but these
22 are not very important properties. The main thing
23 is that the RBP is reduced. And that does not
24 affect carbon monoxide emissions.

25 Next slide, please. The prediction that

1 nonoxy fuels would not use the ARB I also talked
2 about. The lack of aggressive driving is another
3 issue. And I think this is something where I
4 think the data exists. Because the Alliance study
5 that I referred to a little bit earlier that
6 showed that these new tech-5 vehicles do respond
7 to oxygen also had what they call a USO-6, which
8 includes aggressive driving.

9 But the Alliance organization has not
10 been willing to release this data. Someone like
11 me doesn't have the horsepower to force them. So,
12 I'm suggesting today that the Air Resources Board
13 and the Energy Commission could possibly contact
14 the Alliance people and ask them to release this.
15 Because this is one of the reasons why the Air
16 Resources Board chose a nonlinear curve. And the
17 aggressive driving data would shed some light on
18 that.

19 Next slide, please. The next issue is
20 the mitigating equation is besides how much carbon
21 monoxide is actually reduced, is how important is
22 carbon monoxide. There was a slide earlier this
23 morning that mentioned the issue of reactivity of
24 carbon monoxide. Unfortunately, I think it had it
25 backwards.

1 The importance of the reactivity of
2 carbon monoxide has changed in the last few years.
3 The California Air Resources Board uses what they
4 call MIR reactivities and they give a ratio of
5 48:1. There's some new ones that are close to
6 60:1, but the USEPA, using air quality grid
7 models, came up with a 15:1 ratio. So you can see
8 that the reactivity ratio could vary as much as a
9 factor of four. And this is another thing that's
10 being discussed.

11 So if you combine the fact that carbon
12 monoxide is maybe more responsive to fuel oxygen
13 than we thought and carbon monoxide is more
14 important than we thought in terms of reactivity,
15 these two multiply and increase the overall
16 ability of fuel oxygen to perhaps mitigate fully
17 the permeation issue. At least part of the
18 equation.

19 Next slide, please. In the area of
20 nitrogen oxide emissions E-10 is basically
21 forbidden from use in the State of California
22 right now. But there are two main reasons for
23 this nitrogen oxide increase in the existing
24 regulations.

25 One is that contrary to the carbon

1 monoxide issue the Air Resources Board assumed,
2 where they did assume that there would be no
3 response to fuel oxygen for carbon monoxide, they
4 assumed that the NOx response to fuel oxygen would
5 be the same as the older cars made before '94 and
6 what we call tech-4.

7 And this Alliance test which showed that
8 the carbon monoxide was reduced, they also did
9 show a reduction in nitrogen oxide with oxygen,
10 which was totally in the opposite direction. But
11 even if the data had enough scatter that you could
12 say that the response to nitrogen oxide emissions
13 was essentially zero.

14 So if you, shall we say, correct the
15 existing predictive model, where about half of the
16 nitrogen oxide emissions are coming from these
17 newer cars, that would reduce the impact on
18 nitrogen oxide by a factor of two. So this would
19 make E-10 a little easier to make.

20 My previous firm, Systems Applications,
21 has also done extensive work in the rebuilding of
22 the tech-4 base of the nitrogen oxide model. And
23 we've come up with -- or they've come up with
24 several alternative procedures to building a model
25 that lead to essentially a zero impact from tech-

1 4, as well. So this would essentially wipe out
2 the nitrogen oxide problem for -- and the use of
3 E-10. So that's an important point, I wanted to
4 make that.

5 Okay, next slide, please. On the issue
6 of permeation, it still remains there's a lot of
7 uncertainty. There's essentially three different
8 evaluations that I'm familiar with. The
9 California Air Resources Board has numbers in the
10 70 to 90 tons per day in California. The firm
11 Environ came up with -- used the same new data to
12 come up with 19 tons, which is right there a
13 factor of four.

14 And a study funded by the American
15 Petroleum Institute, done by AIR, Incorporated,
16 came up with -- using that same data again, with a
17 number which is about in the middle of those,
18 between the ARB and the Environ ones.

19 One point to remember is that the new
20 data do show that the newer cars have less of a
21 permeation problem than the older cars. So as the
22 fleet turns over in time, say between 2005 and
23 2010, you do see a reduction in these emissions.

24 I believe that's the last slide. Yes.
25 Thank you. Questions?

1 PRESIDING MEMBER GEESMAN: Thanks very
2 much.

3 DEPUTY EXECUTIVE OFFICER SCHEIBLE:
4 Gary, thank you for all the technical input. I
5 think maybe gives the audience a flavor for why
6 updating the predictive model is not something
7 that's done in a couple of months.

8 And we are looking at all of the issues.
9 The science is not always going to be certain, but
10 we're going to get it as right as possible. And
11 we'll consider your views in that process.

12 DR. WHITTEN: Yeah, I hope I wasn't a
13 little too technical, but I realize that these --

14 DEPUTY EXECUTIVE OFFICER SCHEIBLE: You
15 went beyond me at a few points.

16 (Laughter.)

17 DEPUTY EXECUTIVE OFFICER SCHEIBLE: And
18 I probably understand it better than anybody else
19 up here.

20 COMMISSIONER BOYD: I was going to say,
21 you go beyond Mike, you're beyond me. But it's
22 all familiar, Gary.

23 PRESIDING MEMBER GEESMAN: Let me try
24 and bring it closer to earth. My reading of the
25 EPA's decision on the state's waiver request was

1 that the EPA felt that the Air Resources Board
2 had, indeed, made a case for the impacts on NOx
3 and VOC from a waiver; but that that was also
4 compensated by a reverse impact regarding carbon
5 monoxide.

6 And the conclusion that EPA reached was
7 that the overall impact on emissions was, I think
8 to use their word, slight. Is that an accurate
9 summary of at least how the federal government has
10 resolved this dispute between modeling results?

11 DR. WHITTEN: Well, there was a lot of
12 interaction between the EPA and say myself and the
13 Air Resources Board on this waiver issue. And I
14 think that the use of the word slight was that
15 there was enough uncertainty with these, say this
16 new carbon monoxide reactivity data, the new
17 carbon monoxide factors, and the nitrogen oxide
18 issues which I just discussed, that some of the
19 points that the Air Resources Board had tried to
20 make, that you could have air quality problems
21 with the use of ethanol, were countermanded enough
22 so that it wasn't clear. And I think the use of
23 the word slight was a way of saying that.

24 DEPUTY EXECUTIVE OFFICER SCHEIBLE: I'm
25 going to have to opine in here. We reviewed the

1 detailed documentation and really couldn't ever
2 find out where the slight came from in terms of a
3 calculation.

4 And we view it strongly as USEPA said
5 granting the waiver would decrease emissions that
6 are important, and that we would get PM and ozone
7 benefits if the waiver were granted.

8 They then produced additional tests that
9 they said we have to pass in order for the waiver
10 to be granted. But we don't see that they, in any
11 way, undermined our technical case that there are
12 advantages, from an air quality standpoint, for
13 the waiver.

14 And the waiver does not, for example,
15 contain the full assessment because we didn't have
16 the data at the time of what the permeation
17 effects are.

18 But as I said before, we're going to
19 look at all those things as we look at the
20 predictive model and we look at how to mitigate
21 these things into the future.

22 PRESIDING MEMBER GEESMAN: Yeah, and I
23 don't begin to claim to be a scientist on this.
24 But, I'm looking at an impact the federal
25 government characterized as slight, that I think

1 we heard this morning is based on an analysis of
2 ten vehicles. And I don't really know how
3 granular the actual testing in this field actually
4 ever gets. But I will tell you my experience with
5 models suggests that there's a fair amount of
6 false precision sometimes attributed to modeling
7 calculations.

8 And if there's somebody who wants to
9 contradict me on that, I'd be happy to hear it.
10 But I'm trying to get a better handle on exactly
11 how we got to where we are today, and what the
12 prospects of moving off of dead center might be.

13 I certainly look forward to the review
14 of the predictive model.

15 MR. SMITH: This morning Mr. Simeroth in
16 his presentation said that current regulations
17 allow the use of ethanol between zero and 10
18 percent. And one of your slides had a bullet that
19 said the current predictive model prevents the use
20 of E-10. Can you clarify that or reconcile those
21 two statements?

22 DR. WHITTEN: Well, the regulations, I
23 think I could say that de facto prevent, in that
24 the regulations, the current predictive model
25 shows a 5 percent increase in nitrogen oxide

1 emissions with E-10 over a nonoxy fuel, or even
2 more.

3 And there's virtually no refinery
4 processes available that can change the other
5 parameters like T-50 and aromatics and sulfur and
6 what-have-you enough to remove that 5 percent
7 nitrogen oxide. So that means that you can't run
8 a refinery to make a fuel that will pass that
9 specification where it says you have to have a
10 neutral nitrogen oxide.

11 And in order to neutralize the amount of
12 nitrogen oxide increase that the predictive model
13 says, it can't be done. So, it prevents that.
14 Even though the regulations say that if you, you
15 know, reduce T-50 enough and sulfur enough from
16 whatever, you might be able to. But you can't do
17 that in a refinery.

18 I've heard that one refiner has recently
19 been able to get from 5.7 up to about 7.7, but
20 still not that -- not easy.

21 PRESIDING MEMBER GEESMAN: Thanks, Gary.

22 MR. PEREZ: Okay, Commissioner, I'd like
23 to just point out that before we go on to our next
24 speaker, we do have a request by four other
25 speakers under the public presentations area. So

1 I wanted to ask you --

2 PRESIDING MEMBER GEESMAN: Why don't we
3 take them after lunch.

4 MR. PEREZ: Okay. There is one
5 constraint. We do have a gentleman from the U.S.
6 Department of Navy who does have time constraints,
7 so if we could take him now.

8 PRESIDING MEMBER GEESMAN: Okay.

9 MR. PEREZ: That would be great. Okay,
10 thank you. Why don't we have Randal Friedman from
11 the U.S. Department of Navy please come forward.

12 MR. FRIEDMAN: Thank you very much. I'm
13 sorry to impose a time constraint, but I had a
14 meeting in the Governor's Office -- because of
15 this little thing called the budget yesterday.
16 And they asked me to come back this afternoon.

17 I am Randal Friedman; I'm from Navy
18 Region Southwest. I'm here today on behalf of all
19 the military services in California. Aside from
20 our national security mission that represents
21 direct expenditures of \$42 billion a year and some
22 300,000 jobs in the State of California.

23 The military in California has a very
24 strong commitment to alternative fuels dating back
25 to a 1992 Presidential Executive Order including

1 the EPAC Congressional requirements. And most
2 recently, the Secretary of the Navy announced that
3 for all nontactical vehicles operated in the
4 United States they would all be fueled with B-20
5 biodiesel. And we are just finishing that
6 conversion now at all the military installations
7 in California. So if you go on any military --
8 any Naval installation in California today, you
9 will find all the nontactical vehicles fueled with
10 B-20.

11 In fact, if you look at the total
12 statistics, the military accounts for up to one-
13 half the total purchases of biodiesel in the State
14 of California. So we are certainly the biggest
15 customer and have a great deal of experience with
16 that.

17 So why am I here today? I'm here
18 because we've been having problems with the use of
19 biodiesel. And those problems stem from ongoing
20 rulemakings by the ARB concerning requirements for
21 diesel retrofit.

22 Starting with their rule for solid waste
23 vehicles, which took effect in January. And with
24 a number of other rules in the pipeline, the
25 problem with these retrofit requirements is that

1 the use of these retrofit kits with B-20 is not
2 part of the rule, is not part of the
3 certification. And therefore it makes it illegal
4 to use the retrofit kits.

5 In fact, there is a waste hauler in San
6 Diego that, with much fanfare in the year 2002,
7 announced that they converted their entire fleet
8 to B-20 for all the positive environmental
9 reasons. And not so publicly abandoned that this
10 year because they would be in conflict with ARB
11 requirements.

12 We were in that same situation. We have
13 a very large fleet in California that is affected
14 by these rules. And it would take us several
15 years to figure out an alternative compliance
16 strategy if biodiesel is no longer -- no longer
17 works.

18 So we've been very concerned about this,
19 to the point where given the pending problems we
20 went to Senator Roy Ashburn and asked him to
21 introduce a bill, SB-975, this year to
22 specifically deal with this biodiesel issue for
23 public fleets.

24 And he did that. It's working its way
25 through the Assembly now. We've had a number of

1 discussions of that, including with ARB. And that
2 bill will give everyone in the public fleets, and
3 also solid waste haulers, through January 2008 to
4 get this problem resolved.

5 I must emphasize we're in a real bind in
6 this. We have Congressional requirements that
7 tell us to use alternative fuels. We are actually
8 -- the federal government, in its entirety, is
9 actually under litigation from two environmental
10 groups for whether we are fully complying with
11 that.

12 At the same time in California we're
13 facing regulations that say we can't use our
14 primary means of compliance with those
15 requirements, which is biodiesel. So we have been
16 asking for help, and I'm here today to ask you,
17 the Energy Commission, to work with ARB to resolve
18 these differences.

19 I am happy to say that in the last
20 couple of months we've had some very productive
21 discussions with ARB. We think that they
22 understand both our dilemma and the larger
23 alternative fuel issues. But we definitely want
24 to spend the next year and a half in the next two-
25 year window that we're being given through SB-975,

1 to make sure that we can continue to use our
2 existing biodiesel program and the expansions that
3 the Secretary of the Navy has ordered; and do that
4 consistent with California regulations.

5 And, again, you know, if there's
6 anything we can do to help this discussion we
7 would be happy to help. And we look forward to
8 working with both the Energy Commission and the
9 ARB on this. Thank you.

10 DEPUTY EXECUTIVE OFFICER SCHEIBLE: Is
11 the trash truck regulation affecting you directly
12 now?

13 MR. FRIEDMAN: It is not affecting us
14 directly because we got a waiver for the one
15 vehicle that was involved.

16 DEPUTY EXECUTIVE OFFICER SCHEIBLE:
17 Okay, and --

18 MR. FRIEDMAN: But we'll --

19 DEPUTY EXECUTIVE OFFICER SCHEIBLE: --
20 and our current rulemakings, you're involved with
21 them, correct.

22 MR. FRIEDMAN: Yes, we are.

23 DEPUTY EXECUTIVE OFFICER SCHEIBLE: And
24 we haven't adopted any rules that have had the
25 effect that you fear yet?

1 MR. FRIEDMAN: No. They're scheduled
2 for early next year. But, again, our problem has
3 been --

4 DEPUTY EXECUTIVE OFFICER SCHEIBLE: So
5 that's --

6 MR. FRIEDMAN: -- when you're dealing
7 with thousands of vehicles, if all of a sudden we
8 have to find another way to comply with EPAC, we
9 can't do that overnight.

10 And, in fact, if biodiesel is off the
11 table we're probably a year or two behind where we
12 should be in researching and figuring out how
13 we're going to comply with EPAC.

14 I'm going to have to stress, it's not an
15 academic issue for us. There is an active lawsuit
16 against the federal government on EPAC compliance.
17 So, we're being watched very closely how we
18 comply.

19 DEPUTY EXECUTIVE OFFICER SCHEIBLE: But
20 I hope you're fully engaged, and I think you are,
21 in our rulemaking effort so that we can consider
22 and accommodate your concerns. And I know we're
23 working on it from the area of certification for
24 the traps on the trash trucks, can it work out to
25 be 20. So we're trying to find a solution for

1 that one, also.

2 MR. FRIEDMAN: Right. We're working
3 very cooperatively. You know, I think everyone's
4 very hopeful that it's going to be resolved. But
5 it's something that we really need to keep our
6 eyes on.

7 Thank you.

8 PRESIDING MEMBER GEESMAN: Thank you,
9 Mr. Friedman.

10 MR. PEREZ: Okay, Jim Stewart from the
11 BioEnergy Association, who I believe would like to
12 participate through the phone. I know he's
13 patiently been waiting. Are you there, Mr.
14 Stewart?

15 MR. STEWART: Hello, there. Are you
16 there?

17 MR. PEREZ: Yes.

18 MR. STEWART: Hello from Los Angeles.
19 I'm sorry that I could not be present with you
20 today. But I appreciate this opportunity to spend
21 a few minutes with you by phone.

22 My name is Jim Stewart. I am speaking
23 today in my capacity as Chairman of the Board of
24 the BioEnergy Producers Association, a coalition
25 of companies dedicated to the commercialization of

1 clean technologies that produce renewable
2 electricity, fuels and chemicals from
3 agricultural, forestry and urban biomass and
4 plastic wastes.

5 We believe these new industries have a
6 critical role to play in building California's
7 sustainable future, including reduction of
8 petroleum dependency and greenhouse gas emissions,
9 and enhancement of the state's agricultural base,
10 air and water quality, forest health and wildfire
11 protection, landfill diversion and economic
12 development.

13 In May I had the privilege of addressing
14 a CEC workshop on behalf of BRI Energy, the
15 company I represent. And I will not go over
16 ground already covered. However, I would like to
17 say that the BRI technology will efficiently co-
18 produce low cost electricity and ethanol, as well
19 as hydrogen, from any carbon-based wastes or
20 hydrocarbons.

21 During 2004 the State of California
22 landfill 32 million tons of post-recycled organic
23 wastes. From that amount of waste the BRI
24 technology could produce in excess of 2 billion
25 gallons of ethanol and some 2500 megawatts of

1 power here in California. That is more than twice
2 the amount of ethanol currently being consumed in
3 the state, and we could produce it right here
4 within our own borders.

5 This workshop poses the question can the
6 state's current market for ethanol fuel be
7 maintained and expanded consistent with needed air
8 quality progress. The answer is yes, and
9 experience proves it.

10 First, it is generally recognize that 10
11 percent blending of ethanol with gasoline, in
12 addition to reducing our dependence on foreign
13 petroleum, will reduce CO2 emissions from
14 automobiles by 21 percent. And this is the
15 state's largest source of air emissions.

16 Despite Air Resources Board's statements
17 on the permeation effects of ethanol, it is a fact
18 that the state has experienced consistently
19 improving air quality since the introduction of
20 ethanol into its gasoline supply.

21 In the ozone air quality update
22 presented to the California Air Resources Board on
23 December 9, 2004, its own staff reported, quote,
24 "dramatic improvement statewide compared to the
25 previous year." Remember that 2004 was the year

1 when ethanol consumption in California reached 900
2 million gallons.

3 CARB's own staff reported that in 2004
4 the San Joaquin Valley recorded the lowest number
5 of federal one-hour exceedance days in the last 20
6 years. The fewest one-hour exceedance days in 25
7 years in the South Coast. And zero exceedance
8 days in the San Francisco Bay Area, San Diego,
9 Ventura and Sacramento regions.

10 The report showed consistent and
11 continuing year-to-year improvement in
12 California's air quality since ethanol has been
13 introduced into the state's fuel supply.

14 At the very least the Board's own
15 statistics demonstrate that the trends toward
16 better air quality in the state has been
17 uninterrupted and unaffected by the introduction
18 of ethanol.

19 Emphasis on the near-term permeation
20 effects of ethanol must be placed in the context
21 of ethanol's longer range potential for reducing
22 CO2 in automobile emissions. And of equal
23 importance, of its contributions in national
24 security, energy independence, and reducing the
25 cost of fuel for the citizens of California.

1 The lack of this balanced view has
2 enabled Senator Dianne Feinstein and the petroleum
3 producing companies to obtain passage of an
4 amendment to the Senate Energy Bill exempting the
5 State of California from the use of ethanol during
6 the summer months; a provision which, if it
7 prevails in House/Senate conference, will enable
8 these companies to maintain their current
9 profitability without wholeheartedly committing to
10 the use of ethanol as a substitute for imported
11 petroleum in California.

12 I'd like to point out that ethanol is
13 currently selling for approximately \$1.25 per
14 gallon. The average statewide price for a gallon
15 for regular gasoline on July 4th was \$2.46.

16 I'd also like to point out that Brazil
17 has committed itself to operating its vehicles on
18 100 percent ethanol by 2007. It will truly
19 achieve energy independence.

20 Ethanol from waste can provide energy
21 independence for America. It can provide domestic
22 jobs. It can free this nation from spending
23 billions and billions of dollars protecting the
24 economic interests of the petroleum companies in
25 the Mideast and elsewhere throughout the world.

1 And it can provide the means of distributing
2 hydrogen to local fueling stations when hydrogen
3 fuel cells become a viable transportation
4 alternative.

5 In their long-range planning,
6 California's regulatory agencies must take into
7 consideration not merely automobile emissions, but
8 all of the reductions in greenhouse gases that can
9 be achieved in the production of ethanol from
10 carbon-based wastes. Among many sources. These
11 will include reductions in methane generated from
12 landfills. And reductions of CO2 from such
13 actions as the decomposition of agricultural
14 residues.

15 Among the other issues being addressed
16 today are, quote, "the challenges facing the
17 state's alternative transportation fuel supply
18 options." Our Association believes that one of
19 the greatest challenges facing the state comes
20 from its own statutory and regulatory policies.

21 As a major element of its policy on
22 alternative fuels, we urge the Administration to
23 actively support the passage of AB-1090 which
24 properly defines and classifies conversion
25 technologies in statute and will enable them to be

1 permitted and regulated on standards of
2 performance.

3 Current statute equates conversion
4 technologies with incineration and disposal rather
5 than diversion. It defines conversion
6 technologies as transformation facilities
7 requiring them to be permitted as major solid
8 waste disposal facilities under the same
9 regulations that govern the permitting of
10 landfills. Whereas conversion technologies are
11 manufacturing processes that happen to include
12 organic wastes among their range of potential
13 fuels.

14 California law lags behind other states
15 by artificially limiting the concept of beneficial
16 use to traditional recycling and composting. New
17 York, for example, provides a more flexible
18 regulatory framework based upon specific
19 performance rather than technologies. This is a
20 quote from New York's regulatory statutes:

21 "When granting a beneficial use
22 determination, the Department shall determine on a
23 case-by-case basis the precise point at which the
24 solid waste under review ceases to be solid waste.
25 Unless otherwise determined for the particular

1 solid waste under review, that point occurs when
2 it is used in a manufacturing process to make a
3 product, or used as an effective substitute for a
4 commercial product, or used as a fuel for energy
5 recovery."

6 Bringing a greater percentage of the
7 federal tax dollars back to the State of
8 California is one of the Governor's stated
9 priorities. Many incentives, major incentives,
10 for the production of ethanol and electricity from
11 waste are offered in the current federal energy
12 bill. However, the state will never participate
13 in these federal incentives if its bioenergy
14 industry is burdened with and must function under
15 current statute and permitting procedures.

16 I can tell you that we, as bioenergy
17 producers, currently have no alternative than to
18 focus our financial resources on the introduction
19 of our technologies in other states.

20 The bioenergy industry has matured and
21 is ready to move forward. Our member companies
22 are prepared to demonstrate that they can operate
23 within the same stringent standards for air and
24 water quality required of other manufacturing
25 operations. Indeed, that we can far exceed these

1 standards.

2 Conversion technologies do not dispose
3 of waste. They convert them to beneficial
4 products. And in so doing, offer California the
5 opportunity to reduce the proliferation of
6 landfills and the agricultural land spreading of
7 sewage sludge. To assist municipalities in
8 reducing their costs of waste disposal. And to
9 enable the state to take control of its own
10 destiny in meeting its demand for low-cost liquid
11 and electrical energy.

12 However, we need your help and we need
13 environmental and air quality standards and
14 regulations consistently applied on the basis of
15 standards of performance in order to meet
16 California's mandated goals for renewable liquid
17 energy and green power.

18 Thanks very much for giving me the time
19 to speak.

20 PRESIDING MEMBER GEESMAN: Thanks, Mr.
21 Stewart.

22 Any questions we need to address before
23 we break for lunch?

24 MR. PEREZ: I think we had one more
25 request to speak before lunch. That was Joe

1 Sparano.

2 PRESIDING MEMBER GEESMAN: Okay. Joe.

3 MR. SPARANO: This may not be the
4 smartest thing I've done, holding everyone up from
5 lunch. So I'll apologize.

6 Good afternoon. My name is Joe Sparano;
7 I'm President of the Western States Petroleum
8 Association, or WSPA. WSPA represents 26
9 companies that explore for, produce, refine,
10 transport and market petroleum and petroleum
11 products in California and five other western
12 states.

13 I'm here today to provide our industry's
14 comments about and support for opportunities to
15 expand the use of alternative fuels.

16 Let me summarize our position. WSPA
17 companies currently supply and will continue to
18 supply fuels California consumers need. WSPA
19 supports a petroleum-plus approach to creating a
20 diversified energy portfolio for California.

21 This approach takes advantage of an
22 existing supply of the cleanest burning fuels on
23 the planet available to consumers. I believe Joe
24 Norbeck made this point very clearly earlier
25 today.

1 The approach we advocate also promotes
2 expansion of the state's energy portfolio to
3 include other cost effective alternative fuels.
4 In fact, WSPA members are already investing in
5 alternative fuels for the future. In many cases
6 we are and will be the producers and distributors
7 of these new fuels. Our industry is determined to
8 continue producing and selling whatever products
9 consumers need and demand.

10 I'd also like to briefly focus on a few
11 continuing issues that need to be addressed. Our
12 industry believes that unless we eliminate several
13 destructive proposals from California's future
14 energy supply plans, we will continue to be
15 wasting precious resources on battles that we just
16 don't need to fight.

17 The first issue. Even the notice for
18 this workshop reflects the notion that since
19 California's fuel demand continues to grow at a
20 rate in excess of supply additions, a forced
21 reduction in petroleum use is needed. In fact,
22 many of the previous presenters have focused some
23 of their comments on that idea.

24 The notice further states that increased
25 fuel economy alone cannot sustain long-term

1 petroleum reduction. And that a significant
2 penetration of alternative fuels will also be
3 needed.

4 WSPA continues to be strongly opposed to
5 state policies that mandate the reduction of
6 petroleum demand. We believe it's unproductive
7 for government to set arbitrary goals for reducing
8 the availability of what is arguably the cleanest
9 reformulated fuels in the world while California's
10 supply/demand imbalance increases.

11 By following this policy path our
12 industry believes the state will discourage needed
13 investment in additional clean fuel production
14 capacity thereby exacerbating the imbalance
15 situation. This is neither necessary nor prudent.

16 The result of policies that discourage
17 investment in California's petroleum
18 infrastructure will be that less California
19 quality clean-burning gasoline and diesel will be
20 available either from instate manufacturing or
21 from imports. The gap between the state's
22 increasing demand and available supply will widen,
23 and market conditions will be affected.

24 If California refiners, suppliers and
25 distributors are discouraged by state policies

1 from investing in their facilities the impact on
2 California's economy will be negative and supply
3 will be further constrained. Basic economics
4 would tell us these policies could only result in
5 market disruptions that will adversely impact
6 consumers and the economy.

7 By contrast, policies that encourage
8 investment in the state's energy infrastructure,
9 like the siting of LNG delivery and conversion
10 facilities on the west coast, will have the
11 opposite effect and assist in increasing needed
12 supply.

13 Since these facilities are critical
14 elements of expanding the state's energy supply
15 infrastructure, the CEC should insure that LNG
16 facilities are given fair and robust
17 consideration.

18 Our industry's message to you is don't
19 discourage the use of existing clean fuels
20 whatever their source. Clean is clean. Keep
21 using them. And also encourage the use of the
22 next generation of California fuels to insure an
23 adequate and affordable supply.

24 My second issue, while WSPA supports
25 development of competitive alternative fuels

1 industry, we do not support any plan that uses
2 government mandates to substitute alternative
3 fuels for petroleum products or a plan that forces
4 our industry to sell or subsidize new fuels.

5 A more realistic and constructive
6 approach would be to promote policies that
7 increase conservation and efficiency, while
8 facilitating the development of all types of
9 energy infrastructure, including those required
10 for both petroleum-based and advanced
11 technologies.

12 California's policy path forward should
13 embrace a balanced energy future that promotes
14 fuel diversity and fuel neutrality. That energy
15 future needs to include a diverse suite of the
16 most cost effective, reliable and clean-burning
17 fuels to reduce the existing supply/demand
18 imbalance, protect the environment, and keep the
19 economy moving forward. And each of them is an
20 equally important priority.

21 Now I'd like to focus on the specific
22 subject of discussion for today's workshop, that
23 is to explore the relationship between air quality
24 and alternative fuel use.

25 Once again, WSPA finds that from an air

1 quality perspective, the tone of the workshop
2 notice condemns petroleum fuels and seems to
3 inherently glorify alternative fuels. I don't
4 think this is a balanced approach. And, in fact,
5 I'm not here today to tear down one fuel in
6 respect of another, but rather to urge you to be
7 on a more collaborative path where fuels that meet
8 market needs in a cost effective and
9 scientifically sound manner get into the mix. We
10 need them.

11 As previously stated, our companies
12 support the development of cost effective and
13 environmentally beneficial alternative fuels. And
14 they are investing in them now. However, as we
15 heard earlier, not all alternative fuels are
16 completely beneficial from an environmental or air
17 quality perspective.

18 A key component of assessing the
19 differences in environmental benefits is to
20 determine the complete set of emissions associated
21 with substitute fuels under consideration.

22 I think an obvious goal is to assure
23 that equivalent or lower emissions are produced by
24 any alternative fuel when compared to its
25 conventional fuel counterpart.

1 We should all remember that California
2 gasoline and diesel have undergone several
3 reformulations to meet air quality objectives,
4 making them the cleanest burning fuels of their
5 type. The introduction of cleaner burning
6 gasoline in 1996 reduced emissions by one billion
7 pounds a year. The use of clean diesel technology
8 and even cleaner fuels over the net few years will
9 reduce emissions by some 95 percent.

10 Our industry is proud of our role in
11 achieving these environmental results. Obtaining
12 the air quality benefits we all enjoy required the
13 investment of billions of dollars in capital, the
14 dedication of management and staff resources, and
15 compliance with literally thousands of
16 environmental requirements.

17 WSPA strongly supports development of
18 fuel specifications for all alternative fuels. We
19 support implementation of standards that assure
20 good quality fuel is available in order to protect
21 consumers, and to assure that any forecasted
22 emission reductions are based on sound science and
23 realistic expectations.

24 Some key questions posed for this
25 workshop are not answerable at this time. This is

1 because some of the studies that will provide data
2 needed to produce scientific conclusions have not
3 been completed. And I think, again, some of the
4 earlier presenters had some very graphic
5 information that supports that comment.

6 The answer to the question on ethanol,
7 for example, will benefit from additional studies
8 being conducted at the Coordinating Research
9 Council. These studies are examining permeation
10 effects of varying levels of ethanol and gasoline.
11 I think from the numbers we've seen and the wide
12 range, this is not a minor impact. This is not a
13 trivial issue that needs to be dealt with.

14 Perhaps one of the most significant
15 barriers to sensible cost effective implementation
16 of alternative fuels in this state is the need for
17 more reliable data on those fuels. This would
18 allow policymakers to make good decisions that do
19 not have adverse impacts on California's
20 environment or the economy.

21 From some of the presentations this
22 morning it looks like more data is now becoming
23 available, and that's a good thing. WSPA's
24 previously registered our concerns about how CARB
25 establishes standards for alternative fuels, and

1 how those standards are enforced. We're concerned
2 about how the agency provides variances for those
3 fuels without a variance fee, such as those by
4 which conventional fuels are bound.

5 To amplify on this point, we've seen
6 evidence that alternative fuels are not yet being
7 regulated with the same level of air quality
8 oversight as reformulated petroleum fuels.

9 Two good examples of this are LPG,
10 propane, and biodiesel. In the case of propane,
11 CARB has had quality regulations for many years,
12 but has not enforced quality specifications at the
13 retail level of distribution and sale. We have
14 had an ongoing debate with staff about this issue,
15 so I don't think that's new news.

16 In the other case, biodiesel has
17 historically been manufactured and sold in the
18 State of California in many different
19 concentrations. That includes everything from an
20 additive level up to pure B-100, all without state
21 oversight. I understood earlier, and saw again on
22 one of the presentations, that the Division of
23 Measurements, Standards and CARB in the past year
24 have initiated regulations to deal with biodiesel.
25 And Dean Simeroth earlier today showed some

1 promising data from those studies.

2 But there's still unanswered questions
3 relative to both the biodiesel, itself, as well as
4 for the use of biodiesel blends with current
5 diesel fuel. One of the air quality problems
6 still not addressed completely by CARB relative to
7 biodiesel is the increase in NOx emissions from
8 the use of that fuel. And I think one of the
9 charts showed very clearly that there are NOx
10 increases in both the 20 percent and 100 percent
11 level of use.

12 WSPA believes it is unfair and
13 counterproductive to use the goal of reducing
14 petroleum dependence as a justification for the
15 state to move away from its long-standing policy
16 on fuel neutrality. This approach seems to
17 reflect more ideology than practicality.

18 Let me be real specific about this
19 point. We were really concerned recently with a
20 comment in the June 18th edition of The Sacramento
21 Bee that was attributed to Secretary Lloyd. Dr.
22 Lloyd is quoted as saying, and I've read the
23 article, "While available technologies such as
24 hybrid vehicles do reduce our dependence on
25 foreign oil and clean our air, we must also invest

1 in totally eliminating our dependence on fossil
2 fuels and their related air emissions."

3 The term totally eliminating does not
4 seem to be consistent with ARB's previous
5 commitment to performance-based standards and fuel
6 neutrality as the best way to achieve air quality
7 benefits while still allowing the marketplace to
8 work.

9 Maintaining that commitment is key to a
10 successful collaborative effort that will result
11 in an adequate and affordable supply of clean
12 fuels, and that still allows consumers and
13 operators the ability to make cost effective,
14 scientifically sound choices.

15 I find it a bit ironic that some of the
16 alternative fuels that are mentioned as favored
17 options or candidates to replace existing fossil
18 fuel petroleum products are actually petroleum-
19 based fuels. These include, just to mention a
20 few, CNG, LNG, the natural gas that's feedstock to
21 gas-to-liquids technology, and LPG.

22 Is the state proposing to force a switch
23 in fuel consumption from one set of petroleum
24 fuels to another set of petroleum fuels as a way
25 to reduce dependence on petroleum? It is

1 difficult to find value in that approach. And I
2 think, as the Commissioners know, I find it very
3 hard to find any value at all in an approach that
4 eliminates some of the cleanest burning fuels we
5 have yet to develop, which looking forward, have
6 every opportunity to become even cleaner and
7 maintain our position of having, or at least being
8 close to having, enough supply to meet demand.

9 To complete the point, you probably know
10 that on an air quality basis there is currently
11 very little difference between emissions
12 associated with clean diesel fuel and technology
13 and CNG fuel and technology. By 2007 all onroad
14 heavy-duty engines will be required to meet the
15 same PM emissions levels. There will be no
16 difference in emissions by 2010. And clean diesel
17 and CNG vehicles will be certified at the same
18 emission standards.

19 I'd also like to mention that the
20 state's petroleum reduction goal should not be
21 used as leverage, for example, to adopt the South
22 Coast fleet rules on a statewide basis. These
23 rules mandate the use of CNG, and from my
24 perspective, therefore exclude the use of equally
25 clean diesel fuel, with little or no commensurate

1 public health or air quality benefit. That just
2 doesn't seem like the right way to get at more
3 fuel for consumers, all of which is as clean as we
4 can make it.

5 In closing I want to observe that
6 there's a significant challenge ahead of
7 California's industrial segment, state regulators
8 and decisionmakers. That is, we collectively need
9 to insure that consumers have adequate, affordable
10 transportation fuel supplies while we continue to
11 improve the quality of our state's air and water
12 resources.

13 This is a challenge that absolutely
14 requires collaboration between all stakeholders,
15 regulators and other key decisionmakers. As I've
16 said to you before, the petroleum industry is
17 prepared to take the steps necessary to meet the
18 challenge in a cost effective, efficient, economic
19 and environmentally sensitive manner.

20 Thank you for giving me the time to
21 speak before lunch, and I would be happy to answer
22 any questions.

23 PRESIDING MEMBER GEESMAN: Thank you,
24 Joe. I agree with what you said as to the
25 counterproductive nature of ideology in

1 consideration of a subject. And I would certainly
2 encourage you to take that message back to your
3 members.

4 I think your industry gains a lot better
5 traction with the regulatory process in California
6 when you focus on facts and data. You know, I
7 think there probably is a time and place for
8 ideology, but I don't think our process is that.

9 We've heard most of the philosophy
10 behind your comments repeatedly from you, and for
11 next time I would also encourage you to discuss
12 with your members, we don't need much more Adam
13 Smith from the industry. We've heard that
14 repeatedly about your belief in market mechanisms.

15 But I think it would be important if
16 your organization addressed the concerns that a
17 lot of Californians feel, and I think a lot of
18 people all around the country, about the military
19 needs that our petroleum-dependent system seems to
20 be increasingly requiring of the United States. I
21 think that's an element in your comments, both
22 today and the several times you've appeared before
23 us in the past, that seems to be overlooked. And
24 I believe that it's something of considerable
25 concern to people in California, certainly people

1 in state government. And one that I don't think
2 we've heard very much from your industry on.

3 Much of the rationale for pursuing
4 alternative transportation fuels on an accelerated
5 basis seems to stem as much from national security
6 considerations as from environmental or economic
7 balance of payment considerations.

8 Your comments, I think, pretty
9 consistently over the course of the last couple of
10 years, I don't think have addressed those national
11 security considerations. And I'd be quite
12 interested in what your industry has to say about
13 that in the future.

14 MR. SPARANO: Let me start today. One
15 of the things that I think your comments overlook
16 is the effect of previous public policy. Public
17 policy decisions have played a great part, and
18 they're not irreversible, they've been long-
19 standing and that's why it's a problem, but
20 they're not irreversible.

21 So, I challenge government in the form
22 of you regulators who sit here today, and elected
23 officials, to think hard about how public policy
24 choices have helped put us in what I agree,
25 Commissioner, is a more dependent place than I

1 would ever like on foreign sources of oil.

2 But the oil that people are allowed to
3 explore for happens to sit in countries that don't
4 necessarily have the same view of the world as
5 America. We're not allowed to drill offshore, for
6 the most part. Only in the Gulf of Mexico. Great
7 restrictions.

8 People fought ten years to have an
9 opportunity to drill on a little sliver of land in
10 ANWR, in the Alaskan Arctic National Wildlife
11 Refuge. We've not been able to build a refinery
12 for 36 years in California. Part of it is because
13 people don't want refineries nearby. Part of it
14 is because the regulatory system of public policy
15 choices has made it almost impossible to permit a
16 refinery, and I don't have to go through my
17 anecdote because you've heard it before. So I
18 won't repeat another part of my commentary.

19 But the fact of the matter is there are
20 a lot of things that we can do right here in this
21 room on our own to reverse some of the public
22 policy choices that may have been made for all
23 good intentions in the past. But we may now have
24 the technology to operate cleaner, safer, smarter
25 and draw more out of each barrel of oil that we

1 have to import.

2 I don't like -- you infer that my
3 comments don't have statistics. And that's
4 correct; it was more of a policy commentary. I
5 don't like the idea that we import 64 percent of
6 our oil from someplace outside America. Also
7 don't like the fact that in 1982 we produced 10.5
8 million barrels a day of crude from our land, our
9 50 states. Now we produce 5.4 million barrels a
10 day of crude. And it's not because it all ran
11 out.

12 Natural gas is similar. We are awash in
13 natural gas but for years and years we couldn't
14 build a pipeline. All the gas goes back in in the
15 Alaskan North Slope. That field, a wonderful
16 discovery, brought online in the 1980s, has
17 depleted now to where there are less than 900,000
18 barrels a day being shipped out of Alaska, when it
19 was 2 million.

20 Those are all factors, they're
21 statistics. Our industry, on a national level,
22 has been a supporter of using ethanol. As you all
23 know, perhaps better than me, certainly Mr.
24 Scheible, the effects of ethanol on refinery
25 producibility, on refinery flexibility and even on

1 air quality are something that California has to
2 deal with. We have some unique situations, some
3 air quality challenges. We've been right behind
4 the state and the Governor to try and alleviate
5 some of those problems and to do it smartly.

6 Nationally, our refiners blend a lot of
7 ethanol. And right in the middle of it. We
8 blended a lot of MTBE when the state required us
9 to.

10 So I think it may be a little bit of a
11 tilted playing field to suggest that we haven't
12 brought data to the table, and that perhaps by
13 doing so we would recognize a bigger problem of
14 the concerns over national security. I think we
15 all recognize them. Public policy has made it a
16 little more difficult than perhaps you or I would
17 like for us to have dealt with that.

18 So, that's a start. I'll be back,
19 though, with more information.

20 PRESIDING MEMBER GEESMAN: I know you
21 will.

22 (Laughter.)

23 PRESIDING MEMBER GEESMAN: And it will
24 always be good to see you, Joe. I appreciate your
25 comments.

1 MR. SPARANO: I know, and I feel good,
2 as well.

3 COMMISSIONER BOYD: Joe, I'm not going
4 to let you get away that easy.

5 MR. SPARANO: You never do.

6 COMMISSIONER BOYD: At the beginning of
7 your statement you did say your industry supports
8 alternative fuels, and your industry that's
9 engaged in producing and providing alternative
10 fuels. Could you give us some examples of
11 alternative fuels that you are producing and
12 providing now?

13 MR. SPARANO: I think you're a member
14 and strong supporter of the fuel cell
15 partnership --

16 COMMISSIONER BOYD: I almost said
17 besides hydrogen, which is somewhere on the other
18 side of that long bridge that we're trying to
19 assemble.

20 MR. SPARANO: Yeah, but you know that a
21 number of our companies, and I think a number of
22 folks -- the day some of the cars were unveiled
23 over at ARB building, a number of folks spoke
24 about the collaboration between petroleum
25 companies and other interested parties and the

1 automakers to create technology, to do research,
2 to do development into hydrogen fuel cells.

3 I think you're aware that some of our
4 companies are spending tens to hundreds of
5 millions of dollars on solar power. We have
6 companies that are in the middle of gas-to-liquids
7 technology and realizing actual product from the
8 conversion of natural gas to clean diesel.

9 Shell has announced, so I can mention it
10 without it being a secret, that they are in a
11 joint venture in China to do that. Shell and
12 Exxon. And another of our owners, and I think
13 it's Chevron, and if it isn't, forgive me if I
14 miss somebody, they've all invested close to \$16
15 billion in Qatar to convert natural gas into
16 liquids.

17 Now whether a drop of that will get to
18 California or not is questionable, in that there
19 are transportation costs. But they can build it
20 in Qatar. The chances of someone building that
21 here might be different.

22 So those are three or four examples,
23 Commissioner.

24 COMMISSIONER BOYD: Well, Qatar is awash
25 in natural gas.

1 MR. SPARANO: Yes, you're absolutely
2 right. And that's a fair statement. But it's
3 there and they're out there trying to turn that
4 natural gas into cleaner and cleaner diesel. So
5 those, I think, are three or four answers -- three
6 or four examples of what our companies are trying
7 to do. And the price tag is not a million or two,
8 it's hundreds of millions of dollars a year of
9 investment.

10 Because why would companies that
11 currently supply most of the energy used in most
12 of our states in this Union not think forward
13 strategically about what they need to do to be the
14 producers and sellers of fuels of the future.
15 Energy is their business.

16 So I think you're going to see more and
17 more of that.

18 COMMISSIONER BOYD: Thank you. I'm
19 hoping maybe you'll think about what was commented
20 earlier, that the industry more or less has
21 historically controlled the liquid fuel
22 infrastructure. And if it were found that
23 biodiesel and oh, let's say E-85 were very viable
24 from an environmental standpoint that maybe the
25 industry would be interested in helping facilitate

1 fueling infrastructure, which is always a killer
2 for most of the alternative fuel experiments that
3 have been tried in the past.

4 But we'll cross that bridge when we get
5 to it, and we'll see.

6 MR. SPARANO: An observation, and I
7 think my good friend, Jay, of the lab rat group
8 left earlier. That's a great line, I wish I had
9 thought of that first.

10 COMMISSIONER BOYD: He'll probably wish
11 he never said that.

12 MR. SPARANO: But I think there's an
13 observation that needs to be made here. I, too,
14 hope that companies will get together and fuels
15 meet economic and scientific and air quality
16 considerations and they're market-ready. That
17 they get to market and that we have a big part of
18 that. I can't assure you one way or the other.

19 But the fact of the matter is the
20 infrastructure that exists today exists because
21 people invested their money in it. They took
22 risks. And that risk is not just for big
23 companies. It's for little companies, it's for
24 entrepreneurs. And I've heard a lot of good
25 things this morning about some risks people are

1 taking.

2 There's a plant that appears to be well
3 out of the ground now, and ready to start. That's
4 pretty neat. I think it's great for California.
5 So I think there still has to be the element of
6 those folks and a government ready to support
7 quick permitting, tax incentives if they're
8 necessary and if they're good and if they make
9 sense for the public, to allow industry to grow.

10 But at the end of the day someone still
11 needs to invest in all those facilities that come
12 under the headline of the infrastructure that
13 you're referring to.

14 COMMISSIONER BOYD: At the end of your
15 comments you made a comment about MTBE, which if
16 Mike isn't going to respond to it, I'm going to
17 have to respond to it. You said government --
18 we're using ethanol, whereas before government
19 forced the industry to use MTBE. That's not an
20 accurate statement in my opinion.

21 The government provided there had to be
22 oxygenate in fuel. The oxygenate of choice by the
23 oil industry was MTBE. Admittedly, we all looked
24 at it together, including USEPA and water people
25 and everybody else, and said appears to be okay.

1 And away it went.

2 Well, I guess we were all wrong. And so
3 now the oxygenate of choice, in that there is no
4 other choice, is ethanol. So, be careful. Some
5 of us are still sensitive to that.

6 MR. SPARANO: Yeah, I know, and my
7 reference was more in line with -- I think you
8 know me better, it wasn't to poke at anybody
9 individually, but rather the notion that
10 government should pick the winners. MTBE, for all
11 of us, was a bad choice.

12 COMMISSIONER BOYD: Thought it was a
13 winner. Lastly, --

14 MR. SPARANO: My point.

15 COMMISSIONER BOYD: -- and you don't
16 need to comment on this, but you can if you want
17 to, but it's a dilemma we policy people up here
18 that you referred to are going to have to wrestle
19 with.

20 In the ancient past when we were able to
21 meet the demand for transportation fuel more or
22 less with an adequate supply of petroleum products
23 at a seemingly decent price, the concept of fuel
24 neutrality was easy to subscribe to. You know,
25 let the fuels battle among themselves on an

1 environmental, air quality basis, and what-have-
2 you.

3 But in the face of the fact that every
4 president since Richard Nixon, including Richard
5 Nixon, has said we need to reduce our dependence
6 on foreign oil. And in the face of some of the
7 things that Commissioner Geesman was alluding to,
8 that many learned people, many of whom are in the
9 defense of this country, have said repeatedly of
10 late, we're crazy, as a nation, to continue to
11 push that total dependence on a single
12 transportation fuel source, and to push this
13 dependence on importing foreign oil. And you said
14 it was a product of policy decisionmakers that a
15 lot of people made.

16 But in light of everyone agreeing that's
17 the wrong way to go, the idea of broaching the
18 fact that we ought to diversify for security
19 reasons, which means introduce some alternative
20 fuels, doesn't seem to me to be a wrong-headed
21 thing to do.

22 Now, I know you're going to hit me with
23 petroleum-plus, and I know what you mean by that.
24 But petroleum-plus doesn't address the national
25 priority of reducing our dependence on foreign

1 oil. And so how do we reconcile all that?

2 MR. SPARANO: Well, I guess first
3 observation is you got to start somewhere. And
4 petroleum-plus at least doesn't throw out the baby
5 with the bathwater.

6 The other issue is I think I mentioned
7 and would be happy to back it up with more
8 detailed information if companies will make it
9 available, that is the companies who are in the
10 middle of bringing in or producing that fuel to
11 which you alluded as us being dependent upon, are
12 also investing hundreds of millions of dollars of
13 their cash flow to create new fuels.

14 I don't think you heard me say and I
15 know you'll never hear me say I don't want to see
16 alternative fuels. As I said, what the folks have
17 done up in, was it Goshen, that's fabulous, that's
18 great. Okay. It's an entrepreneurial idea that's
19 taken root and it's going to produce some fuel.

20 The point is our members are equally
21 interested in trying to invest their money smartly
22 so that they can help in that process. But
23 there's a lot of good natural resource, that I
24 heard some things I hadn't seen and saw some
25 things I hadn't seen this morning about the

1 quality of the emissions from some of the
2 automobiles and the fuel and the technology
3 improvements that have now made air quality of
4 some of those conventional internal combustion
5 engines about as good as you could get anywhere.

6 So I think all that has to be mixed into
7 the balance. It's too simply to say we're too
8 dependent so we have to force other technologies,
9 from my perspective.

10 And I know our members are working hard
11 and spending a lot of money to try and develop
12 some of the other technologies and other fuels to
13 which you have alluded.

14 PRESIDING MEMBER GEESMAN: That's a
15 great place to stop and have lunch.

16 Why don't we come back at 2:45.

17 (Whereupon, at 1:31 p.m., the workshop
18 was adjourned, to reconvene at 2:45
19 p.m., this same day.)

20 --o0o--

1 AFTERNOON SESSION

2 2:48 p.m.

3 DR. SCHUETZLE: I'm going to touch on a
4 number of the items that you had in your
5 questionnaire. And, of course, I can't get into
6 too much detail on any one item, but after working
7 30 years for Ford Motor Company and also being in
8 charge of energy environmental programs and other
9 programs for 18 countries, I've got a, I think,
10 pretty good idea of global view of things.

11 And I must say that when I talk to a lot
12 of government leaders outside of the State of
13 California, people always refer back to California
14 as being a leader in many areas, including energy
15 and the environment. So, hopefully we'll continue
16 that leadership.

17 Next slide, please. I just show this
18 slide to kind of give an overview of some of the
19 items I'm going to talk about. The items that are
20 with the dark blue background are those items that
21 you specifically asked questions about.

22 I'd also like to make some comments
23 about the three items on the bottom: the hydrogen;
24 one thing that we haven't talked about here is
25 natural gas/hydrogen mixtures, which I think is

1 something that you really should look at for the
2 long term. And dimethyl ether is another one that
3 you haven't talked about, and there are some other
4 countries, in particular Japan and China, that are
5 putting billions of dollars into research and
6 development and infrastructure for developing a
7 dimethyl ether fueling capability for the country.

8 So, next slide. Before I talk about the
9 specific technologies, alternative fuel
10 technologies, I'm going to talk about some of the
11 ways in which we assess whether a technology is
12 going to make it or not. And when we look at
13 technologies we're looking at technologies in the
14 global term and for the long term. So not just
15 for next year or the year after that, but for the
16 long term.

17 We carry out something called an E-5
18 analysis, and I'm not going to go into the details
19 of it. This just gives you a brief outline. And
20 I'm sure many of you who look at technologies use
21 all of these processes in some way. We're trying
22 to quantify this as we go on with our
23 organizations and looking at these various
24 technologies and trying to get a better sense for
25 the economics of the technology, which is really

1 always a key driver, is whatever technology you're
2 going to put out there as far as developing
3 alternate fuels. And the use of those alternate
4 fuels, are they competitive with the current
5 technologies.

6 Energy efficiency is very important.
7 That drives -- if you have a high energy efficient
8 system that does drive down the cost, if your
9 capital and operating and maintenance costs aren't
10 that high. And also energy efficiency relates to
11 greenhouse gas emissions. A very low efficient
12 system will have, in general, higher greenhouse
13 gas emissions, CO2.

14 We've been talking a lot about the
15 environment. I was glad to see Joe Norbeck here,
16 who is an old associate of mine back in the Ford
17 days, although he left many years ago, I just left
18 two years ago. I'm going to draw upon some of the
19 things that Joe has said, with some of the data
20 he's shown on current vehicle technology.

21 Evaluation is very important. Will the
22 technologies actually work in the long term; are
23 they safe? Is the technology going to break down?
24 those types of issues are important. And then
25 finally, effectiveness is something we look at

1 which are really sociopolitical assessments.

2 Next slide, please. Economic viability
3 is simply what the cost is versus the benefits.
4 And we usually look at things in a life-cycle
5 assessment mode, because you shouldn't look just
6 at the technology of making the fuel and using the
7 fuel. You should go beyond that.

8 Energy efficiency. It's fairly simple.
9 But you have to add up all the energy that goes
10 into making the fuel, as well as what you get out
11 of it. And, of course, energy efficiency in a
12 vehicle is very important when you look at
13 alternative fuels.

14 Environmental impacts. I just listed
15 three because I ran out of space on the slide.
16 We've got 20 different environmental impact
17 categories that we utilize for these assessments.

18 Next slide. As you know, all
19 technologies go through these four phases. We
20 look at every step of this RD&D -- RDD&D phase and
21 evaluate how well that organization has done on
22 each one of these phases.

23 And then finally, effectiveness, which
24 you can do -- you can go through all the other
25 four Es and everything works great. But there

1 could be sociopolitical reasons that it'll never
2 come to be. And that could be just simply because
3 the stakeholders don't want it in their particular
4 area; could be lots of other reasons.

5 So that's what -- all the things that
6 I'm going to talk about right now utilize this
7 global assessment, E-5 assessment, to come up with
8 the least -- for the data that we have right now
9 for many of these technologies, the best
10 assessment of what we believe these technologies
11 hold for the future.

12 Next slide. You've heard a lot about
13 ethanol. Spent a lot of years working on
14 alternate fuel vehicles, in particular ethanol, as
15 well as the technology that goes into the
16 vehicles.

17 Our view has been that ethanol overall
18 on an energy efficiency basis barely gives you,
19 for the amount of energy you put into growing the
20 corn, harvesting, producing the ethanol, barely
21 gives you a positive benefit, as far as energy
22 goes.

23 Unfortunately, there are a number of
24 studies out there that give you different numbers
25 for what that energy balance is. I know there's a

1 Berkeley study, which I haven't read yet, which
2 says that it's an energy-negative as far as
3 ethanol production. I haven't looked at that;
4 maybe some of you have. But most of the studies
5 say that ethanol is about 15, maybe 20 percent
6 energy positive.

7 The big shame is that when you produce
8 an agricultural crop to produce starch or sugar
9 that you're throwing away most of the plant and
10 disposing of it in some way. In some cases there
11 is a use for it. But this is why -- and you've
12 heard this already -- that future efforts should
13 also concentrate on the production of ethanol from
14 the waste biomass that is included with that
15 starch material. And in particular, agricultural
16 waste, like corn stover.

17 And when you add up all of the biomass,
18 waste biomass that is available in this country,
19 there's a DOE study that is called the Billion-Ton
20 Study. They came up with an assessment that in
21 this country right now is accessible 1.2 billion
22 tons per year of waste biomass. That can produce
23 one heck of a lot of energy.

24 The problem is the technologies are
25 really not quite there for converting that biomass

1 to fuels and/or energy. I'll say a little bit
2 about that.

3 Next slide. As Alan Lloyd is, and
4 myself and others here I know in the State of
5 California, are very favorable as to the prospects
6 of diesel. There are some issues. And I'll talk
7 right now about biodiesel and then just in general
8 diesel from renewable and waste resources,
9 bioresources.

10 As somebody who's worked on diesel
11 engine technology and developed diesel engine
12 technology and other vehicle technologies, one of
13 our concerns when a new fuel came to be onto the
14 market was the issue of durability.

15 As you know, vehicles, especially
16 diesels, have to last for now 100,000 miles per
17 gasoline vehicle or for a diesel maybe 150,000,
18 200-, 250,000 miles. So you got to worry about a
19 new fuel and what it's going to do to the
20 durability of that particular engine system.

21 And when you look at new diesel engine
22 technology the injectors systems are fairly well
23 refined, especially injectors. And if you've got
24 particulate matter or some material in there
25 that's going to cause a deposit in that injector

1 you're going to have trouble and your emissions
2 are going to go up.

3 So, with that, we know from what little
4 work that has been done that bio -- diesel engine
5 emissions are reduced except for NOx. There's
6 been a lot of discussion about NOx.

7 When I was back at Ford we did a lot of
8 work on modeling emissions and engines. For the
9 most part, just understanding what biodiesel is
10 and the composition versus diesel, you really
11 shouldn't see much of a change. Maybe a little
12 bit of an increase, basically because the
13 temperature is going to run a little bit higher.
14 But for all practical purposes there's not going
15 to be much of a change of NOx emissions from
16 biodiesel versus regular diesel.

17 Again, our key worry is about long-term
18 durability of engines. People buy diesel engines
19 because they last a long time. Therefore, as has
20 been done with other fuels, I know you already
21 have some standards, you really have to look
22 carefully at adopting very stringent fuel quality
23 specifications.

24 And one of the problems with the
25 biodiesel community is you got all these little

1 niche producers of biodisel. And people will buy
2 it -- it's not like you're getting the biodiesel
3 from a large producer who's got very stringent
4 quality assurance programs. So that's something
5 to worry about.

6 Now, if you're adding just 10 percent to
7 diesel maybe it doesn't make so much of a
8 difference. But depending on what contaminants
9 are in that diesel fuel, it could make a
10 difference in that biodiesel.

11 One thing that really hasn't been done
12 with respect to biodiesel is this going through
13 this 5-E assessment, especially with respect to
14 energy. Are you putting more energy into
15 producing biodiesel than you're getting out? I
16 know there's a little bit of data, but surely not
17 enough to answer that question. And surely, in my
18 view, you don't want to produce a fuel that takes
19 more energy to produce than you're going to get
20 out of it. Otherwise, we're going to be CO2
21 positive. It's going to be a negative effect on
22 the environment.

23 Next slide. Gas-to-liquid fuels. We've
24 heard quite a bit about that. I'm going to
25 address basically not diesel fuel production from

1 natural gas, which is really just using another
2 petroleum product to produce diesel fuel, but
3 basically diesel fuel from waste biomass. Again,
4 the 1.2 billion tons per year that we have in this
5 country.

6 And whether you're using natural gas or
7 coal or a waste biomass as a starting material,
8 some of the processes are pretty much the same.
9 You generate a syn gas, which is carbon monoxide,
10 hydrogen, methane. And then you go through a
11 Fischer Tropsch catalyst to produce diesel fuel.
12 Or you can produce ethanol. You can produce
13 gasoline. It depends on the particular catalyst
14 and the conditions in which you're operating.

15 Sasall down in South Africa, whom I
16 worked with quite extensively when I was at Ford,
17 has done a very good job of that. Also we do have
18 a plant in the United States, in North Dakota.
19 But don't visit in the winter; it's very cold.

20 It's in Beulah, North Dakota. It's a
21 very large plant that takes coal and produces
22 various chemical products. They're not producing
23 diesel right now, but they surely could.

24 The advantage -- a little plug again for
25 diesels -- diesel engines are very robust engines.

1 They have a very high fuel economy compared to
2 gasoline engines, as high as 43 percent better
3 than gasoline engines. What a great way to reduce
4 fuel consumption in this state is to introduce
5 clean diesel engines. And the technology is
6 there. We had a conference. Alan Lloyd hosted a
7 conference down in southern California about two
8 years ago. We had many of us talking about the
9 prospect of meeting the new California diesel
10 regulations. And we all believe that they will be
11 met. But what you got to have is a clean diesel
12 fuel. Low sulfur or no sulfur; high cetane.
13 These GTL diesel fuels meet those requirements.
14 No sulfur and high cetane, something on the order
15 of 70 cetane value.

16 And with these fuels, because they're
17 running efficiently, you do get significant
18 reductions in emissions, and especially these
19 fuels are much easier on the control systems that
20 have been developed. So that's something we've
21 got to push along in California. I know it's hard
22 to do to implement something like this. But it is
23 important.

24 Next slide. This just kind of
25 reinforces some of the things I've just said. I

1 think there are a few more studies that need to be
2 carried out just to show the advantages of gas-to-
3 liquid diesel fuels, especially from renewable
4 sources are a great benefit to the state.

5 And there are some further studies that
6 are needed to measure emissions from these diesel
7 engines. Although there are a lot of vehicle
8 manufacturers that are doing that right now.

9 Next slide. Propane. I've been
10 involved with propane for many years. When I talk
11 about propane here, I'm talking about it just in
12 general use for automobiles, passenger vehicles,
13 public use. Not so much for the niche markets. I
14 know there are niche markets, especially in
15 industry; they use small vehicles for running
16 around in factories and whatnot. But in general
17 it's not -- a lot of manufacturers around the
18 world have pulled away from producing propane
19 vehicles.

20 Just to say a little -- I've been
21 involved with a number of studies about the
22 resources of various petroleum products like
23 propane over the next many years. Even though
24 propane, we heard, is in high abundance right now,
25 especially in the State of California, that will

1 change. That'll change because propane is a
2 byproduct of natural gas in cases where they have
3 those lower end hydrocarbons as part of the
4 natural gas. And the natural gas production in
5 this country is going down pretty quickly.

6 In fact in a meeting with DOE back a
7 month ago in Washington, D.C., one of the leaders
8 of DOE said that on the east coast they were about
9 within a week of running out of natural gas on the
10 east two winters ago. It's pretty scary. So the
11 supplies are getting kind of tough. So you have
12 to really look to the long term about the
13 viability of using propane.

14 Plus there's another thing that's
15 happening. More people are moving out to the
16 countryside, especially in California, up in the
17 hills. And propane is the main source of energy
18 for houses for heating and for cooking. And so
19 there's going to be an increase in demand, I
20 believe.

21 One fuel that I've worked with with the
22 Japanese and the Chinese is dimethyl ether.
23 Dimethyl ether is a very clean diesel fuel. In
24 fact, sorry I didn't get a chance to put together
25 a slide on it, but use dimethyl ether, it uses the

1 same infrastructure as LPG. Which means you don't
2 have to put a lot of money into the
3 infrastructure.

4 Slight modifications of diesel engines
5 will work on dimethyl ether. And the emissions
6 are such that -- I've got the data right here --
7 NOx over a diesel engine is reduced by 60 percent,
8 hydrocarbons by 40 percent, carbon monoxide by 55
9 percent; and particulates were not even
10 detectable. Less than 5 mg per mile. So, very
11 clean fuel. The Japanese and Chinese are putting
12 billions of dollars into developing infrastructure
13 for this. Something we should be considering.

14 Next slide. Plug-in hybrid electric
15 vehicles. This is one of your questions. And I
16 know, Jim, you had -- I know that's of interest to
17 you.

18 It's not much of a modification to take
19 a current hybrid electric vehicle and add a plug-
20 on capability. It's going to be a lot more do-
21 able as time goes on. Battery technology is
22 improving, so you're getting more storage in the
23 battery. Without having to significantly modify
24 the hybrid electric, that's something that could
25 be done right now, or even in the near future with

1 the better batteries.

2 Since a lot of people only drive short
3 distances, this would be good for maybe up to ten
4 miles. The charge is worth about ten miles of
5 running the vehicle. That's a good start. And I
6 think a lot of manufacturers are considering this.

7 But I don't believe it's a bridge. And,
8 in fact, I don't understand how it would be a
9 bridge in accelerating market penetration for
10 future zero emission vehicles. It's two different
11 technologies. Unless I misunderstood your
12 question.

13 Now, I believe for the last 16 years,
14 and I've been very heavily involved with the
15 development of hybrid electrics, is that hybrid
16 electrics are really a technology that needs to
17 move faster. And California should somehow
18 encourage faster introduction of these vehicles.
19 I know there's a number of those vehicles out
20 there, but the manufacturers, in general, have
21 been very slow in bringing them out, especially in
22 large vehicles. These technologies are great for
23 large vehicles. That's where you get the fuel
24 savings.

25 I've been involved with electric vehicle

1 programs for a long time, and a long time ago we
2 decided that small electric vehicles were the only
3 vehicles that make sense. The neighborhood
4 vehicles; vehicles like for airports; niche
5 markets.

6 In fact I built a plant in Hanoi to
7 build some of these vehicles, but I hear it hasn't
8 survived because there hasn't been much of a
9 market for it.

10 But I think it's something that,
11 especially for California with our climate, still
12 has a place and should be considered.

13 Next slide. Now, Joe Norbeck gave some
14 very nice presentations about current vehicle
15 technology. The new vehicle technologies are
16 really very good. In fact, we have been saying
17 for years in many cases the emission control
18 system is so good that it's cleaning up the air
19 that's coming into the vehicle, or into the
20 engine.

21 So, knowing that and knowing how far
22 we've gone, and also I've been very involved with
23 health studies, epidemiology studies over the
24 years, in my view, and I think Joe Norbeck was
25 kind of alluding to this, that standards that you

1 have now in place should be sufficient for the
2 long term to protect human health and welfare. I
3 don't see any reason to go any further than we --
4 the key is to concentrate on renewable fuels,
5 alternative fuels, improve the infrastructure,
6 improve fuel economy, that's what we should be
7 concentrating on.

8 And I think that's about it. Again, I'd
9 make a pitch for renewable fuels. There's a lot
10 going on in California and other places in the
11 world to take the waste that we generate, which is
12 a lot of waste, and produce something good from
13 it. And we've got -- our team has a project from
14 the Department of Energy, Department of
15 Agriculture, to look at producing fuels from small
16 biomass convergent systems and we just had a six-
17 hour presentation to Department of Agriculture and
18 DOE in Washington, D.C. back a month ago.

19 And we'll be continuing to look at other
20 technologies that are coming on the horizon to
21 make sure that it fits this 5-E criteria. And if
22 you don't meet all these criteria it will end up
23 with failure, which, I think, in some of these
24 technologies. So, we have to look at it in a
25 global sense.

1 So, thank you.

2 PRESIDING MEMBER GEESMAN: Thank you
3 very much, Dennis. You mentioned a couple of
4 times in your presentation the long term.

5 DR. SCHUETZLE: Um-hum.

6 PRESIDING MEMBER GEESMAN: I wonder if
7 you could give us a time dimension --

8 DR. SCHUETZLE: Yes.

9 PRESIDING MEMBER GEESMAN: -- for your
10 remarks?

11 DR. SCHUETZLE: Back when I was at Ford
12 from about 1996 to about '98, might have been 1995
13 to '98, fortunately this is when Ford was making
14 money, not so good nowadays, but they gave us a
15 couple million dollars to look at the long-term
16 prospect of petroleum resources, well, fossil fuel
17 resources in the world.

18 And because I was covering these 18
19 countries where a lot of exploration was opening
20 up I did have access to a lot of government files,
21 and also worked closely with -- actually the oil
22 industry was hard to get data from, so I had the
23 fortunate -- it was good timing. The fellow who
24 was the editor of "Oil and Gas Journal", Mr.
25 Kennedy, retired; and so I got a lot of

1 information from him.

2 But we put together a study, and at that
3 time, which was published, our data was published
4 in 1998 and I also presented it at various places
5 around the world. We saw a global gasoline
6 petroleum supply of about 39 years. Natural gas,
7 a little bit higher, about 50 years. This is on
8 the global average. And coal about 120 years.

9 Now we're a few years down the line.
10 And we did it for a couple countries. We did it
11 for the world; we did it for China. Actually,
12 what's happened, and I gave a presentation in San
13 Francisco about a year ago about the update on
14 this, especially with emerging markets.

15 India, China have a much higher rate of
16 growth than we expected, and so now energy use is
17 going up faster than we expected. That's number
18 one. On number two, the petroleum supplies that
19 people said were there were over-optimistic.
20 That's number two, actually.

21 Number three is the peak, which we
22 predicted to be about this time, has occurred
23 according to a lot of experts, the peak of oil use
24 versus production.

25 So when I talk about timeframe I'm

1 talking about, for petroleum, for this country,
2 for the world, it's probably 30 years now; for
3 this country, it's less.

4 So we're talking about looking -- we
5 have to do something substantial in the next -- by
6 2020.

7 PRESIDING MEMBER GEESMAN: Thank you
8 very much.

9 DR. SCHUETZLE: Does that make sense to
10 you?

11 PRESIDING MEMBER GEESMAN: Yes, it does.

12 DR. SCHUETZLE: Okay.

13 PRESIDING MEMBER GEESMAN: Thanks.

14 DR. SCHUETZLE: Thank you.

15 PRESIDING MEMBER GEESMAN: Yes, on the
16 telephone? Should be up. Dan, is the webcast not
17 on?

18 MR. FONG: I'm not aware of that. I
19 agree that it should be up.

20 UNIDENTIFIED SPEAKER: It didn't come
21 back after the lunch break.

22 PRESIDING MEMBER GEESMAN: We'll check
23 into it.

24 UNIDENTIFIED SPEAKER: Okay, thanks.

25 PRESIDING MEMBER GEESMAN: Thanks for

1 bringing it to our attention.

2 MR. PEREZ: Okay, our final formal --

3 PRESIDING MEMBER GEESMAN: We've got one
4 question.

5 MR. VAN BOGART: I just wanted to
6 clarify a few points of the last speaker. That
7 propane is the number one alternative fuel in the
8 world. There's over 9 million vehicles that run
9 on propane. It's increasing at 4.6 percent per
10 year. And it's seen an increase for the last 20
11 years.

12 So the future of propane in alternative
13 fuels is pretty good. 99.9 percent of the world
14 is able to convert vehicles to propane. And
15 that's why most of the vehicle manufacturers don't
16 offer OEM vehicles. It's relatively inexpensive
17 and easy to convert a vehicle to propane around
18 the world.

19 PRESIDING MEMBER GEESMAN: Are you
20 worried about the worldwide supply of propane,
21 though?

22 MR. VAN BOGART: No, the supply of
23 propane, earlier in my presentation, is on the
24 rise. As a matter of fact, the supply is
25 outpacing demand. Demand is increasing for

1 propane worldwide in emerging markets. However,
2 supply, because of the increased demand for
3 petroleum and natural gas, we're continually
4 seeing larger supplies of propane.

5 One of the other things about LNG,
6 importing LNG into this country, when they bring
7 that product in here and it is put into the
8 pipeline, they have to take some product out. And
9 a lot of that is going to be propane. And the
10 quality of that propane is probably going to be
11 HD-5 or HD-10 or even cleaner.

12 So the prospects for propane, especially
13 here in the United States, as we are a
14 clearinghouse for propane, is pretty good.

15 MR. PEREZ: Okay, with that, our final
16 formal presentation under public presentations
17 will be John Boesel from Calstart.

18 MR. BOESEL: I'll just be very fast.
19 I'm on the panel, so Dan, next slide, please.

20 I did just want to emphasize the point
21 about flexfuel vehicles. This is a slide taken
22 from a Petrobras presentation recently. And they
23 talk about the significance of flexfuel vehicles
24 now in the Brazilian economy. And really enabling
25 ethanol as a fuel. That this is a major

1 breakthrough that if, for some reason, the supply
2 runs short people can still run their vehicle on
3 gasoline.

4 And, Dan, next slide. Shows there how
5 the flexfuel vehicles -- this is just since
6 January '03 to December '04, how the sale of
7 flexfuel vehicles are taking off. Over 12
8 different car manufacturers are selling those
9 vehicles in Brazil quite successfully.

10 So I just want to emphasize, I think
11 there is a tremendous opportunity for E-85 in
12 California. Minnesota is really the leading
13 ethanol state right now, with 100 E-85 stations.
14 Strong support from their Governor, from their
15 Legislature to try to make that happen. And we
16 only have our one E-85 station here, or two, I
17 guess, now in California.

18 Go ahead, Dan. And I want to
19 reemphasize I think it's important to have a clear
20 and understandable policy related to E-85 and
21 certification of the stations. I think just
22 within this week there's been some movement on
23 CARB's part, which has been welcomed. But I think
24 we need to see that through to the end and really
25 make sure that we get this issue addressed related

1 to the certification of the stations.

2 And I think the state also ought to
3 consider mandating that all vehicles sold in the
4 state become flexfuel vehicles. A very small
5 incremental cost associated with those cars.

6 Go ahead, Dan. And -- Dan, a couple of
7 clicks here -- one fuel that wasn't talked about
8 or listed in the questions was a biogas, basically
9 renewable methane. Very similar to natural gas
10 except it is renewable.

11 Go ahead, Dan, a couple more clicks.
12 And I think we ought to really consider the
13 greater use of biogas and look at any barriers
14 that exist to using biogas and putting it into the
15 pipeline system.

16 Couple more clicks there, Dan. Go
17 ahead, next slide. In Sweden we had a study tour
18 last year. Over half of the methane for their
19 methane gas vehicles, or their natural gas
20 vehicles, comes from bio sources. So they are
21 effectively using biogas in that country for the
22 transportation market.

23 Go ahead, Dan. And this slide is a
24 little complicated, but if you look at the right-
25 hand side you will see that the Swedes are

1 directly injecting their biogas into the pipeline
2 system, sometimes from the digesters directly to
3 the station, or sometimes into the pipeline
4 network.

5 And this is something I'd really
6 encourage the CEC to explore and make sure that
7 there aren't any barriers to that happening. And
8 then methane could be used -- or renewable methane
9 could be used to both generate electricity, as
10 well as for the transportation market, and help to
11 augment our supply of methane here in California.

12 Go ahead, Dan. Skip that one, that's a
13 repeat somehow. And then this is a very simple
14 point of recommendation for the state in terms of
15 all alternative fuels. We know, you go to any HOV
16 lane you know that you can get in there if you
17 have a carpool, two or three, it varies throughout
18 the state.

19 But there's no signage anywhere on the
20 state's highways to indicate that clean fuel
21 vehicles with the right sticker can get diamond
22 lane access. And this is the law. It should be
23 stated. It would also be a great form of public
24 education. And I don't know why the state has
25 never sort of moved ahead with this basic signage

1 policy. But I think it would help to educate the
2 consumers and move this industry forward.

3 And lastly, I think we need incentive
4 funding. Go ahead, Dan, a couple of clicks here.
5 Really we need a Moyer-type program for energy
6 security for the promotion of clean fuels. This
7 could become the Geesman Program Fund, or the Boyd
8 Fund or --

9 (Laughter.)

10 MR. BOESEL: -- Fund. But, anyway, it's
11 beyond Moyer, it's for energy security. And I
12 think that the time is really needed, and we
13 really need this now to help address the subsidies
14 that the oil industry already has, the entrenched
15 fuel. And then to encourage and support these
16 other alternatives.

17 Okay, so I think that's the last one,
18 last click. And that's it. Thank you very much.

19 COMMISSIONER BOYD: I hope you're not
20 forecasting the demise of one or the other.

21 (Laughter.)

22 MR. BOESEL: That was not implied.

23 PRESIDING MEMBER GEESMAN: I think the
24 program could be better funded if it were the Joe
25 Sparano Fund.

1 (Laughter.)

2 PRESIDING MEMBER GEESMAN: Why don't we
3 start with our panel. If the panel members would
4 come up --

5 MR. PEREZ: All right. At this point in
6 time we'd like to invite the panel members to
7 please come forward. We have name tags up here
8 for you.

9 (Pause.)

10 MR. FONG: I was just informed that our
11 webcast will also be available in a minute or two.

12 (Pause.)

13 MR. PEREZ: Okay, now that we have
14 everybody up here, I want to thank everybody for
15 agreeing to participate. As part of the workshop
16 notice we outlined two basic questions in there
17 that we would like to use for some informal
18 discussions in terms of identifying some of the
19 challenges that face the development of
20 alternative fuels here in California, and with
21 respect to the supply options. And what
22 opportunities exist for overcoming some of these
23 challenges and barriers.

24 So we're looking for input from you as
25 to some concrete recommendations and solutions to

1 better help us help you get alternative fuels into
2 the marketplace.

3 And then the second question we'd like
4 to get some input from is does California need
5 more stringent motor fuel formulation and vehicle
6 emission standards than what we currently have
7 adopted? And if so, how can alternative fuels
8 play a role?

9 So, what I thought I would do is begin
10 on one end of the table and just move around to
11 get your responses. And keep it somewhat
12 informal; hopefully encourage some dialogue back
13 and forth with the Committee and the
14 representatives at the dais, too.

15 And then following the panel discussion
16 we are going to open up this forum for public
17 comments, especially from those who have been
18 waiting patiently on the phone lines. Because I
19 know that they will have many questions, too.

20 So, maybe we can begin with Henry, and
21 please identify yourself for the record, too.

22 MR. HOGO: Good afternoon. My name is
23 Henry Hogo; I'm Assistant Deputy Executive Officer
24 at the South Coast Air Quality Management
25 District. And I wanted to thank the Committee for

1 having us here today to participate in the
2 process.

3 The question that you posed today is one
4 that we've been grappling with for many many years
5 now as we look at bringing on cleaner fuel
6 technologies into the South Coast Air Basin.

7 And over the years we've seen a lot of
8 activities on alternative fuel technologies. And
9 I just wanted to point out three areas, which is
10 really a summary of what you heard this morning on
11 the challenges of having more alternative fuel
12 technologies in place today.

13 The first one is engine availability and
14 refueling infrastructure. So, those two are
15 critical in order to get greater penetration of
16 alternative fuel technologies into the network.

17 PRESIDING MEMBER GEESMAN: It wouldn't
18 seem that either of those were necessary, though,
19 for blend fuels, would it?

20 MR. HOGO: It wouldn't be so much for
21 blend fuels, and I'll get -- maybe -- let me start
22 off by saying that when we look at the fuel
23 technologies, we support all fuel technologies
24 that provide clean air benefits. And to the
25 extent that they have energy diversification, all

1 the better. So that's not an issue to us.

2 The issue, relative to air quality, is
3 the reactivity basis of these different
4 alternative fuels. If we want to really
5 effectively bring in all these fuels we have to
6 look at and integrate a process.

7 Let me start off by talking about
8 natural gas and propane. That's an integrated
9 process where you have the fuel providers working
10 with engine manufacturers. You have the product
11 and you have the fuel together.

12 I think what part of the issue here is
13 that for ethanol and biodiesel they're working
14 from the fuel side; and the engine side needs to
15 work a little bit, too, because, yes, you can use
16 the fuel in the engine. You need to fine-tune the
17 engine in order to meet the performance,
18 especially in terms of emissions. So, that's the
19 other side of the question.

20 And there may be a little bit disconnect
21 in terms of working together for those type of
22 blended fuels. So that's that part of it. And
23 I'll get to some research that we're doing on some
24 of these fuels to help facilitate that.

25 But, part of it is that you need to have

1 a wide variety of products, because the fleet
2 operator is the ultimate customer here. And the
3 fleet operator has to have some confidence that
4 that technology is going to be around, that it's
5 not a stranded technology. And so we get those
6 type of concerns raised by fleet operators.

7 Then the other concerns deal with fuel
8 efficiency and performance. So, all those issues
9 have to be addressed as part of a complete package
10 in order to implement alternative fuel
11 technologies.

12 PRESIDING MEMBER GEESMAN: But you're
13 more focused on the fleets and fleet operators
14 than the general public?

15 MR. HOGO: We are focused on general
16 public, also. And, as your Commission knows,
17 we've been working very closely with you on
18 buydown programs for light duty vehicles,
19 alternative fuel vehicles, electric vehicles in
20 the past. So we strongly support that activity,
21 also. So it's really a full package that we're
22 looking at.

23 The second issue is funding. We believe
24 that there is a need for sustained funding. The
25 funding to offset the capital costs of these new

1 technologies. And the funding for refueling
2 infrastructure. And your Commission, as well as
3 our agency, as well as the Air Resources Board,
4 have supported funding of infrastructure in the
5 past. And we continue to do that.

6 There's a part of this, in terms of
7 funding, which is sort of -- I'll use the word
8 philosophical, but it may not be truly -- I think
9 everyone has this on their mind -- it's a
10 commitment. And a lot of times we, as a public
11 agency, do a funding program. And we fund the
12 entity to buy a new technology. And we just track
13 it.

14 A lot of times there's a need to
15 handhold the end user through that process. And
16 when our Board adopted our fleet rules back in
17 year 2000 they made a commitment that we have to
18 work with the fleet operators to make sure that
19 they can use these vehicles in a very efficient
20 manner. That they don't run into problems. And
21 if they do, we have to work on it to resolve it.
22 So that's sort of a commitment for the long haul.
23 And I believe that all of our agencies have that
24 commitment, and just haven't the necessary
25 resources to make it work.

1 So without that commitment what we've
2 seen in the past, especially in the mid '80s to
3 the early '90s, is the first generation of
4 alternative fuel vehicles didn't perform all that
5 well. And there was no forum for the operators to
6 find ways to fix those problems. And now those
7 issues keep cropping up as problems that still
8 occur with even the new generation technologies,
9 which is not the case. So we still get that type
10 of question on that.

11 I think the last part that I want to
12 mention in terms of actually in terms of
13 opportunities is that public awareness is an
14 important message that we -- the message of
15 alternative fuel and the performance have to get
16 out to the public. So, public awareness education
17 is very important in this process.

18 And we believe that when your Commission
19 and the Air Resources Board make your final
20 summary, that that message has to get out to the
21 general public. If you want to see a 20 percent
22 penetration of alternative fuel technology, that
23 has to get out to the general public. And we
24 believe that a strong message from the state
25 agencies will get that going.

1 We follow the alternative fuel
2 activities for many years, and when we look at how
3 that works, and we've been looking at the State of
4 New York in which the Governor of New York made an
5 announcement that the state would go mainly with
6 natural gas as an alternative fuel. But really
7 the whole state government went in line and
8 followed that direction.

9 So we need that type of leadership on a
10 state level to move the technologies forward. We
11 think 2020 is 16 years from now, but when I look
12 back at our air planning history, and Commissioner
13 Boyd and Mike Scheible know this, that in 1990 we
14 said we have to attain the ozone standard by 2010.
15 Well, that's only four years from now, and we
16 don't know how to attain that standard without
17 putting in some very stringent measures.

18 So we really have to start taking our
19 actions today. And we believe that there are
20 opportunities to do that.

21 Lastly, I just want to point to the
22 research phase. And we have worked with your
23 Commission and the Air Resources Board on funding
24 research and demonstration programs. We need to
25 continue that effort for all the different fuel

1 types in order to effectively move them on.

2 I think demonstration projects are the
3 greatest way of showing to the general public or
4 fleet operators what these alternative fuel
5 technologies can and cannot do.

6 And we recognize that they don't all fit
7 the full market spectrum of conventional-fueled
8 engines. So, we do want to make sure, at least
9 for those niche markets, that the greatest
10 penetration occurs. And we've seen that happen,
11 especially with the transit fleets.

12 And down in Los Angeles the LAMTA has
13 over 2000 natural gas buses at this time. And
14 they're looking to go to almost 3000 in the next
15 few years.

16 So it is an area where things are
17 moving, finding those markets and making sure that
18 they get the greatest penetration.

19 PRESIDING MEMBER GEESMAN: What role do
20 you think fuel neutrality should play in our
21 policies?

22 MR. HOGO: I'm thinking of the way we
23 look at it, in terms of air quality. And you may
24 need to look at it in terms of fuel efficiency and
25 how you want to reduce petroleum dependency, or

1 have your energy diversification.

2 We look at air quality as any fuel types
3 that need a benchmark. And we look at it
4 similarly the way we look at stationary sources,
5 where we have what's called best available control
6 technology. There is no such thing for mobile
7 sources.

8 So, in terms of what we see certified as
9 the cleanest available today should set the
10 benchmark for all the other fuels to play. So in
11 that sense we consider anything that can meet some
12 benchmark to be equivalent. And that's the way
13 our fleet rules work.

14 When I think of the energy side, fuel
15 efficiency, it doesn't work all that well, because
16 a lot of these alternative fuels are not as
17 efficient as the conventional diesel fuel. But
18 part of it is not necessarily because of the fuel,
19 itself, and the technology is less fuel efficient,
20 is the resource that you put into the technology
21 to make it more fuel efficient.

22 And I'll give you an example. When
23 natural gas engines first came online, the thought
24 of just having a diesel engine converted to run on
25 natural gas with spark ignition process rather

1 than a compression emission process. The engine
2 manufacturers just slapped it together. And they
3 get reductions right away for nitrogen oxides.

4 Well, as time went on and the emission
5 standards got tighter, we saw that the engine
6 manufacturers came back and said, well, we didn't
7 think you were going to go to another level of
8 standard. So we're going to go back into our
9 workshops and come out with a better engine.

10 So, really, it's doing the least for
11 whatever the regulatory process requires seems to
12 be the mode of operation. So we believe we can
13 push the efficiency further. In fact, some of the
14 newer studies that are coming out on alternative
15 fuels are showing that they're equivalent to
16 diesel nowadays than they were before.

17 So, fuel efficiency is one thing.
18 Energy diversification, I would say every fuel
19 that meets -- that doesn't exacerbate an
20 environmental topic should be considered in this
21 process.

22 PRESIDING MEMBER GEESMAN: Thank you.

23 MR. HOGO: Thank you.

24 MR. EAVES: Good afternoon; my name is
25 Mike Eaves with the California National Gas

1 Vehicle Coalition.

2 I'd like to expand a little bit on
3 something that Henry talked about on product
4 engine and vehicle availability. That's really
5 critical. If you want to promote this, if you
6 want to promote something like natural gas and
7 dedicated natural gas vehicles, you have to do it
8 in a way that's consistent with the marketing and
9 sales objectives of companies that you're working
10 with.

11 Companies like, you know, Ford and GM
12 and Chrysler terminate models, you know, that have
13 been around for 20, 30 years when production
14 volumes, sales, you know, get down below 40,000
15 vehicles a year.

16 In the NGV industry all the
17 manufacturers that we had, probably our high water
18 mark was maybe 10,000 vehicles between all
19 manufacturers in a given year.

20 If you want product and one size doesn't
21 fit all for the consumer, or for heavy duty fleet
22 customers, you have to have programs and
23 everything that really work at getting market
24 penetration; getting the types of numbers and
25 production sales numbers that manufacturers need

1 to stay in business.

2 I've got some of the manufacturers
3 making the best natural gas engines in the world,
4 the lowest emission engines in the world, and they
5 could do more engines, but they can't get approval
6 from their management to go to a, you know, class
7 8 tractor until they show success on the sales
8 side on the products that they've got.

9 Light duty manufacturers, exactly the
10 same way. We've lost essentially every
11 manufacturer in the natural gas vehicle arena at
12 least once in the course of our history. And we
13 may lose some of those for the second time.

14 So, you know, we're looking at the heavy
15 duty market is key for us; things like the
16 consumer market, Honda and their Civic GX. It's
17 key for them to see a success in that to keep
18 those folks in the game.

19 So, any problem that California wants to
20 adopt and everything really has to look at how
21 aggressively you're going to do it, and can you
22 keep all the players in the game. And --

23 PRESIDING MEMBER GEESMAN: But is that
24 consistent, Mike, with a policy of fuel
25 neutrality?

1 MR. EAVES: I don't think it's
2 consistent with a policy of fuel neutrality, no.
3 I think that fuel neutrality, I think the whole
4 purpose of, you know, AB-2076 is looking at, you
5 know, do we need something else. And I think
6 something else is not fuel neutrality.

7 I know Joe talks frequently of we're for
8 everybody being able to play as long as they can
9 compete economically. Well, you're not going to
10 achieve market transformation from ground zero
11 without some type of societal cost to get the
12 thing going.

13 We haven't even been able to do -- you
14 know, you look at programs like the Moyer Fund
15 program that the ARB administers and everything.
16 And that's made huge gains in emission reductions
17 in areas that we couldn't touch before, but we can
18 because we incentivize that.

19 So I think if we want to do fuels that,
20 you know, fuel neutrality is not the way to go. I
21 think you have to put some significant guidelines
22 and boundaries on how much you want to potentially
23 incentivize that.

24 You know, I don't know if we're ever
25 going to get time for it today, but I mean I had

1 another presentation on a study that TIAX did for
2 us that goes beyond what they did for the AB-2076
3 report that shows natural gas technologies in the
4 2010 type technology area to be very highly
5 competitive with diesel.

6 So I don't think you have to --

7 PRESIDING MEMBER GEESMAN: You're not
8 going to get time for it today, but if you'd send
9 it to our docket, it would be --

10 MR. EAVES: I'll do that, yes.

11 PRESIDING MEMBER GEESMAN: -- carefully
12 reviewed.

13 Dave.

14 MR. MODISETTE: Yes, thank you,
15 Commissioners. Dave Modisette with the California
16 Electric Transportation Coalition.

17 I guess, you know, I was a little taken
18 aback when I saw the first question, because with
19 two exceptions, and I can mention those if you
20 want me to, you know, from my perspective there's
21 really no meaningful program or plan to encourage
22 alternative fuel supply options in California.

23 So, you know, when you say what are the
24 challenges, you know, the challenges are almost
25 infinite. And I think that, you know, the very

1 very first thing we need is an implementation
2 plan. We need a roadmap, as I've said to the
3 Commission before, both agencies, both the
4 Commission and the ARB have adopted very ambitious
5 goals in this area. I think that they're good
6 goals; they're very very tough goals.

7 Staff has said that those goals are
8 attainable. But there's this big gap between what
9 staff says is attainable and how are we going to
10 get there. And I've used the analogy of the state
11 implementation plan for air quality before. It's
12 made up of hundreds of little teeny things that
13 the state can do to finally meet its ambitious air
14 quality goals.

15 And that's really what we need for
16 transportation fuel, as well, is a state
17 implementation plan to meet our transportation
18 fuel goals.

19 PRESIDING MEMBER GEESMAN: You don't
20 believe in immaculate conception?

21 MR. MODISETTE: There is no silver
22 bullet, no.

23 You mentioned fuel neutrality, now fuel
24 neutrality is really a concept that has not served
25 us very well, either from a fuel diversity point

1 of view, or from an air quality point of view.

2 Just on the fuel diversity side, you
3 know, if you look at the tremendous success we've
4 had in diversifying fuel sources in the
5 electricity sector, and you compare that to what
6 we've done in transportation, you know, what we've
7 done in transportation is an absolute failure.
8 The concept of fuel neutrality does not take into
9 consideration, you know, the benefits of
10 alternative fuels, including diversity, but also
11 greenhouse gases, in terms of upstream emissions,
12 lack of emission degradation.

13 And it hasn't served us very well in air
14 quality, as well, I'd have to say, because
15 petroleum has become the least common denominator
16 for emissions standards. You know, if the ARB
17 even attempts to set an emission standard that
18 petroleum cannot make, the oil companies, you
19 know, scream bloody murder.

20 And so what happens is that the standard
21 gets set at a level where petroleum can always
22 meet that. And because, you know, petroleum has a
23 lower cost, particularly initial cost than
24 alternative fuels, it's always the least cost
25 option. So that's where consumers always go.

1 As we've recommended before, we think
2 that state agencies and local agencies in the
3 areas of energy, air quality and greenhouse gas
4 regulation should be required to consider all
5 three of those things in their regulatory process,
6 in funding incentive programs and in policies.

7 And then I guess just kind of lastly,
8 you know, specific to electricity, there are still
9 significant barriers within air quality
10 regulations that are preventing electricity from
11 being used as a transportation fuel. There are
12 aspects of the regulations that don't even allow
13 electricity to compete with internal combustion
14 engines.

15 In many cases there are not incentives
16 for electric and other alternative fuels which are
17 cleaner than the required standard. And lastly,
18 as Mike mentioned, incentive programs administered
19 by the ARB and some of the air districts don't
20 include the benefits of alternative fuels.

21 Thank you very much.

22 PRESIDING MEMBER GEESMAN: Thank you.

23 Jon

24 MR. BOESEL: John Boesel, Calstart.

25 I'll just be brief. I did have a chance to speak

1 earlier, and I think Dave just hit the nail on the
2 head.

3 Really there are three key issues that
4 we're trying to address with our transportation
5 programs at the state level, and that's the air
6 quality, it's our national, our energy security
7 and climate change.

8 And when you look at it, if we continue
9 our reliance on oil we won't meet our objectives
10 in those three areas.

11 So, this whole sense of fuel neutrality,
12 in my mind now, is assuming we want to achieve our
13 goals in each of those three areas, which I think
14 most people agree to, then we need to move away
15 from oil.

16 And then so fuel neutrality becomes
17 let's level the playing field and encourage all
18 the other fuels to move forward, and to encourage
19 efficiency. But we are moving away from the mono
20 fuel that we have today.

21 So I think maybe it's a new sense of
22 what fuel neutrality is. It's all the other fuels
23 but oil. Sorry, Joe.

24 (Laughter.)

25 MR. BOESEL: So, and I think that's --

1 if we do that there's a tremendous opportunity for
2 the state's economy in terms of new job creation,
3 taking advantage of new technologies of the kind
4 of plants we saw in the San Joaquin Valley today,
5 for growing crops.

6 The state will benefit economically,
7 there's no question in my mind, in the long term,
8 if we pursue that policy. And I think that's
9 really what we need is that statewide policy to
10 say, you know, all these three key criteria are
11 important and we need that policy, we need that
12 roadmap to really make that happen.

13 And I think that's the key issue. And I
14 do think that funding the incentives I mentioned
15 earlier are a key part of it. If we could start
16 with a Moyer type program for fuel security,
17 energy security that would be a tremendous help.
18 And I think there are ways to fund that that would
19 work.

20 PRESIDING MEMBER GEESMAN: Were you here
21 earlier for Joe Norbeck's presentation?

22 MR. BOESEL: Yeah.

23 PRESIDING MEMBER GEESMAN: Focusing on
24 the three criteria that you just outlined, what I
25 would gather from his presentation is that on the

1 air quality front, in terms of content of current
2 petroleum-based fuels and standards applied to new
3 vehicles, it's simply a question of waiting for
4 the fleet to turn over. That we've really
5 squeezed as much blood out of that stone as we're
6 likely to on the air quality side, which I think
7 following your logic would suggest that we focus
8 then on energy security considerations and global
9 climate change.

10 MR. BOESEL: I think that the new
11 vehicles absolutely are getting very clean. And
12 it's hard to argue with that. But if you've got
13 opportunities to encourage programs that improve
14 air quality, but they also address the climate
15 change and energy security, you ought to do those.

16 For instance, you could start phasing
17 into the Moyer program and energy security
18 element, and a percentage of the funds must be
19 spent on fuels that not only reduce diesel
20 emissions, but also reduce our dependence on
21 foreign oil and address climate change. That
22 could be phased in over time.

23 But I do think that for the new vehicles
24 air quality is becoming less of a driver for
25 alternative fuels.

1 Now, I also hear my friends on the
2 regulatory side and the environmental groups
3 saying we're still not meeting our air quality
4 goals. So --

5 PRESIDING MEMBER GEESMAN: Right.

6 MR. BOESEL: So how do we get to there.
7 And I'm not sure of the answer for that.

8 PRESIDING MEMBER GEESMAN: Remember how
9 clean --

10 MR. BOESEL: But I think that in their
11 own right climate change and energy security are
12 two great drivers, two great reasons for the state
13 to be showing this kind of leadership and moving
14 ahead with an ambitious alternative fuel program.

15 COMMISSIONER BOYD: And for my friend
16 Dave Modisette, remember how clean electricity is.

17 MR. MODISETTE: Just a very quick
18 comment. My understanding of the Norbeck analysis
19 is that it's just a vehicle analysis. In other
20 words, one that looks at tailpipe and evaporative
21 emissions. It did not look at the well-to-wheels
22 type of emissions, the upstream emissions.

23 And particularly with these cleaner
24 vehicles, the PZEV vehicles, the ULEV vehicles,
25 the upstream emissions are getting to be as large

1 if not larger than the vehicle emissions.

2 So, I think the correct way to do that
3 emissions analysis, even on the air quality side,
4 is a well-to-wheels analysis.

5 PRESIDING MEMBER GEESMAN: Fair enough.
6 Luke.

7 MR. TONACHEL: Good afternoon. My name
8 is Luke Tonachel. I'm a vehicles and
9 transportation fuels analyst with the Natural
10 Resources Defense Council.

11 I want to start off first by saying that
12 NRDC recognizes the vital importance of
13 alternative fuels for reducing California's
14 dependence on petroleum. Secure, reliable,
15 affordable sources of clean transportation fuels
16 are necessary for a strong economy and a healthy
17 environment.

18 Petroleum fuel production and use, as we
19 know, results in emissions of criteria pollutants,
20 air toxics, greenhouse gases and water pollutants.

21 The state's economy is also threatened
22 by frequent and rapid changes in petroleum prices
23 which can be manipulated by oil-producing
24 countries often hostile to the U .S.

25 And as we look ahead, oil prices will

1 grow increasingly unpredictable as countries such
2 as China and other developing nations compete for
3 the same fuel that we're looking for for our
4 petroleum supply.

5 Also California's population growth,
6 coupled with its tight refinery capacity, means
7 that the gap between the demand and supply of
8 petroleum-based fuels will continue to widen.

9 So clean alternative fuels offer a
10 significant opportunity for minimizing the demand
11 supply gap and reducing harmful mobile emissions.

12 With that said, alternative fuels
13 production and use must be increased in a way that
14 maintains or improves our air and water quality.
15 Actions taken to reduce petroleum dependence
16 should be environmentally sustainable.

17 In convening today's meeting we've all
18 recognized that alternative fuels can have an
19 impact on air quality. Other environmental
20 impacts, such as water pollution and other effects
21 on human health should also be considered.

22 So NRDC recommends that the state
23 agencies coordinate the completion of a full fuel
24 cycle analysis for each transportation fuel. And,
25 of course, we're not starting from scratch. We've

1 heard a lot of information today about some of the
2 analysis that's already been done and some of the
3 information that's there.

4 But pulling all that together, we can
5 then following the analysis, create a strategy to
6 promote alternative fuel markets. And that
7 strategy should give priority to those alternative
8 fuels that deliver larger reductions in pollution,
9 including global warming pollution, and petroleum
10 consumption.

11 In the notice of today's workshop there
12 are several key questions enumerated. I think an
13 effective way to address these questions is to
14 combine the environmentally focused fuel cycle
15 analysis with the economic demand and supply
16 forecast information that the Commission has
17 already worked to complete in the Commission Staff
18 report, Options to Reduce Petroleum Fuel Use.

19 An alternative fuel evaluation completed
20 over say the next year could then lead to a
21 strategy that sets targets for the amount of
22 alternative fuels that we use in following years.

23 Just listening to some of the discussion
24 that we've had today I've been encouraged by
25 discussions about E-85 and cellulosic ethanol.

1 These are things, I think, in the past we've been
2 focused on, low blends and how we're going to get
3 over the issues associated with low blends.

4 In that context we're looking forward to
5 participating in the review of the predictive
6 model, but it's important that we look forward to
7 some of our goals of reaching new sources for
8 ethanol, as an example, from cellulosic sources.

9 I also want to suggest that future
10 alternative fuel discussions include hydrogen.
11 And I note there's not time today to get into
12 depth on hydrogen, but -- and we also may think of
13 hydrogen as a long-term strategy. But the Energy
14 Commission and the California Public Utilities
15 Commission has already put forth some goals in
16 terms of completing hydrogen fueling stations
17 outlined in the joint CEC/CPUC Energy Action Plan.

18 And I think that when were looking at
19 evaluating all alternative fuels together,
20 hydrogen produced from renewable sources, as an
21 example, sets a high bar for where we're trying to
22 get to, and provides a way for us to put a vision
23 in front of where we want to go with alternative
24 fuels.

25 Thanks.

1 PRESIDING MEMBER GEESMAN: Your
2 organization has been fairly supportive of some of
3 the advanced coal technologies, has it not?

4 MR. TONACHEL: I think, to my knowledge,
5 we've been supportive of IGCC with carbon
6 sequestration. But pushing it, making sure that
7 it has carbon sequestration capabilities.

8 PRESIDING MEMBER GEESMAN: So would
9 hydrogen produced by that particular configuration
10 meet your standard?

11 MR. TONACHEL: I think it's something we
12 would have to look at. I'm not sure that I can
13 answer that today.

14 PRESIDING MEMBER GEESMAN: Thank you.
15 Jon.

16 MR. VAN BOGART: Thank you. Jon Van
17 Bogart with Delta Liquid Energy/Clean Fuel USA. I
18 think it's important that we look at the
19 challenges in light of creating a balance. I know
20 in dealing with OEM manufacturers in the issues
21 that we have been forced to face over the last few
22 years, OEM manufacturers, they change engine
23 families and vehicle platforms quite rapidly in
24 the United States.

25 That creates a challenge, because each

1 time they do that you have to recertify that
2 vehicle and that engine. It has to go through the
3 whole entire process. You can use some of the
4 information but not very much.

5 As small as changing a computer chip or
6 a valve or any component in that fuel system, it
7 causes a new recertification of that vehicle.

8 So those are some of the economic
9 challenges and that's part of the balance, that we
10 don't create such a financial bar that's so high
11 that even the small vehicle manufacturers, now,
12 which is pretty much all that's left on the
13 alternative fuels side, that it's so high that
14 it's unachievable.

15 PRESIDING MEMBER GEESMAN: Who are we
16 talking about with respect to propane engines and
17 what type of annual production do they achieve?

18 MR. VAN BOGART: Emission reductions?

19 PRESIDING MEMBER GEESMAN: No, numbers
20 of engines produced per year. How large are these
21 manufacturers?

22 MR. VAN BOGART: Well, they're GM
23 engines, they're Ford engines, virtually any
24 gasoline engine can be converted to propane.
25 There is no propane engine manufacturer.

1 Baytech is a perfect example. They take
2 the GM platform and they upfit that platform to
3 propane. And they go through the certification
4 process. It costs anywhere from \$500,000 to a
5 million dollars.

6 And in my slide presentation earlier we
7 looked at the cost of the upfit for the consumer
8 versus the cost of the certification process for
9 the manufacturer. And that's been an avenue that
10 they have been forced down. I think a couple
11 reasons. We've gone from carbureation technology
12 to electronically fuel injected and OBD and so
13 these have created challenges for the upfit.

14 On the fuel quality side, I think that
15 we shouldn't -- actually on the emissions side and
16 the fuel quality side I don't think that we should
17 reduce standards. I think standards have been set
18 for all the right reasons.

19 I think we can meet the standards, but
20 it's the financial threshold in doing so. It's
21 the difference between the reality of actually
22 deploying those vehicles into the marketplace.

23 And some of the recommendations that I
24 had made earlier, and I think that Dave Modisette
25 had touched on this, too. We need a cohesive

1 program from the state; we need a steering wheel;
2 we need a keel in the water that gives us a
3 program. We can do it, we just need to know the
4 pathway.

5 And this is very important. Other
6 states have done it. Other countries have done
7 it. And I'm pretty confident that we can do it
8 here in California. Developing an alternative
9 fuel program for the state in coalition with the
10 Air Resources Board and the Energy Commission, and
11 bringing in the manufacturers, maybe through the
12 state college system, through laboratories and
13 things. Anything we can do to help lower the cost
14 of the R&D and the certification.

15 Deploying the vehicles in today's
16 economics is relatively simple, because fleets are
17 looking at substantial fuel cost savings at 50
18 percent reduction from gasoline, in parity with
19 diesel. And with the fleet rules down in the
20 South Coast now, and with the new GM platforms we
21 have available, we're highly confident that we're
22 going to place a lot of vehicles in that
23 marketplace.

24 So from our industry's standpoint we're
25 looking for balance and we're looking for a

1 cohesive program from the state. And we're pretty
2 excited about working with the state on those two
3 things.

4 PRESIDING MEMBER GEESMAN: Thank you.
5 Joe.

6 MR. SPARANO: My name's Joe Sparano. I
7 have two jobs. At night I'm WSPA's President, and
8 during the day I'm John Geesman's personal
9 punching bag.

10 (Laughter.)

11 MR. SPARANO: Both jobs are difficult --

12 PRESIDING MEMBER GEESMAN: You punch
13 back, too.

14 MR. SPARANO: -- but the latter one is
15 more painful.

16 I said a lot this morning so I don't
17 want to hog the microphone, but I do want to make
18 a couple comments. I think it's really important
19 to remember, my guess is the path to success is
20 not going to be, with respect to my friend John,
21 having neutrality mean all other fuels but oil.

22 We have a very strong oil base in our
23 economy. We have lots of good fuels that lots of
24 us in this room have participated in making
25 cleaner and cleaner over time.

1 I still -- perhaps my New Jersey lack of
2 intellect allows me to fail to see the wisdom
3 behind eliminating some of a clean fuel supply
4 when we are desperate to balance supply and
5 demand.

6 Everything I said this morning, I think,
7 or this afternoon, was related to augmenting,
8 adding onto, increasing the amount of alternative
9 fuels. But there are some challenges. And that's
10 what I'd like to address very briefly here.

11 Customer value. Customers have to feel
12 an appreciation for the types of vehicles, and
13 even the fuels that they're going to use. And
14 they have to see value in it. There has to be
15 economics, affordability.

16 And finally, the availability of the
17 resources. We talked about a lot of things that
18 may -- a lot of fuels that may actually contribute
19 to reducing the concerns over national security.

20 I guess I would observe that national
21 security is not necessarily a function of where
22 you get your oil, but it's how you manage your
23 public and international policies.

24 And so we've worked ourselves into a
25 spot where that's now become awkward and

1 difficult. And we need to address it.

2 But I'm not sure that throwing out our
3 oil supply or diminishing it and reducing it is a
4 pathway to success. Because I think there's a
5 great deal of compatibility, particularly with air
6 emissions becoming lower and lower, air quality
7 becoming better and better through collective
8 efforts of a lot of people. So I think that's not
9 necessarily the best way to deal with this.

10 Finally, let me just tick off a couple
11 of things that I think the regulators, the folks
12 at the dais who are going to be charting the
13 future energy plan, and filling it out and
14 hopefully setting it up so that there's a great
15 deal of collaboration and maximum use of our
16 resources.

17 Those people who invest, whether it's
18 oil companies who have spent \$7 billion to make
19 their product cleaner, not exactly a small amount
20 of money, over a 15-year period, \$7 billion for
21 gasoline and diesel and more money goes in every
22 day. Those folks and the folks who will represent
23 the next wave of fuels, the entrepreneurs, like
24 the Koehler Brothers and the gentleman who spoke
25 this morning about the new plant, they have to

1 have certainty. Nobody makes an investment
2 without certainty.

3 And one of the great areas of certainty
4 that I think needs to be fully addressed and
5 considered is regulatory certainty. The more
6 things change, the more difficult it is for any of
7 us who want to invest to convince people who have
8 the money to make those investments, whether
9 they're shareholders or individual investors, that
10 they have a good reason to do that.

11 Clean performance. I heard well-to-
12 wheels used repeatedly. And I think all the fuels
13 ought to get looked at in that way. I think it's
14 an important criterion.

15 Automobile performance. I had the
16 privilege last week, and this might shock
17 everybody in the room if I had a contest. How
18 many of you have ever driven a hydrogen fuel cell
19 car personally? Okay, not that many. You have.

20 Dr. Wallerstein, in a meeting last week,
21 realized I had to get to the airport early and
22 volunteered to get me a car. And then he said,
23 I'll have somebody drive you in the fuel cell car.
24 And I said, wait a minute how about I drive it.
25 And he got a little upset because I'm not sure he

1 is comfortable with my driving skills.

2 But anyhow, to make a long story short,
3 he allowed me to drive the Daimler fuel cell car.
4 What a great piece of equipment.

5 It drives beautifully. I can
6 accelerate. I can drive almost like I drove in
7 New Jersey. And I'm comfortable with it. It's a
8 very comfortable piece of equipment in terms of
9 human comfort. Doesn't accelerate all that
10 quickly. And it only has a 120-mile range.
11 That's not a knock. I really liked that car. And
12 I've told a lot of people inside and outside the
13 industry this story because it impressed me so
14 much.

15 But until those kind of things are
16 worked out where you have the ability to give it
17 mass market appeal, it's going to be very
18 difficult to get into this chicken-and-the-egg
19 situation where you've got to have enough cars for
20 people to make them, but you've got to generate
21 the interest by the automakers being willing to
22 make them, and refueling stations work their way
23 in.

24 So, I think performance, mass market
25 appeal, cost effectiveness are all the other

1 pieces that represent a challenge to this group
2 that's working so hard to overcome it.

3 PRESIDING MEMBER GEESMAN: Well, I think
4 that, as you know from our prior workshops,
5 regarding refining infrastructure, or storage
6 infrastructure, marine terminals, in general I
7 tend to think you make very good points.

8 To the extent that state regulatory
9 policy can provide greater certainty there and
10 create a better climate in which to invest in
11 clean facilities, I think that's a good idea.

12 But on the crude production side, I
13 listened to you pretty carefully this morning, and
14 I heard ANWR. I don't know how many months of
15 breathing space that provides us, but it's not
16 very long. And then I heard offshore. And my
17 hunch is that California's not going to allow
18 offshore oil development during the lifetimes of
19 my great grandchildren. Do you differ with that
20 prognostication?

21 MR. SPARANO: Part of it. Just to touch
22 on ANWR, because I think there's been -- I had an
23 opportunity to exchange views with Senator Boxer
24 on Sunday morning on tv. And she used the same
25 comment you just did, it's just a few months of

1 oil.

2 Well, the reserves that have been -- I
3 can't say proved, because nobody's poked a hole
4 yet, but the seismic would suggest that there
5 might be 10 to 15 billion barrels. I think people
6 use 11. We could produce for 20 years the same
7 amount we import from Saudi Arabia from ANWR. You
8 can't look at it as the U.S. 21 million barrels a
9 day of demand. No field could produce it; the
10 pipeline can only move two.

11 So, I'd like at least that perspective
12 understood, if not appreciate and embraced, at
13 least understood --

14 PRESIDING MEMBER GEESMAN: Not only
15 understood, it's on our transcript now, Joe. And
16 there's a number that you'll be held to.

17 MR. SPARANO: Good. And you wanted
18 numbers. Earlier you said --

19 PRESIDING MEMBER GEESMAN: I do.

20 MR. SPARANO: -- give me numbers.

21 PRESIDING MEMBER GEESMAN: I do.

22 MR. SPARANO: The other piece is that,
23 yeah, offshore is a really difficult thing. It's
24 a very emotional issue. It's one where we had a
25 terrifically ugly situation 24, 25 years ago, --

1 PRESIDING MEMBER GEESMAN: Longer than
2 that, 1969.

3 MR. SPARANO: '69, I can't add. Yeah,
4 36 years --

5 PRESIDING MEMBER GEESMAN: Thirty-six.

6 MR. SPARANO: -- ago, same time as the
7 last refinery was built.

8 PRESIDING MEMBER GEESMAN: Yeah.

9 MR. SPARANO: And that just sticks in
10 everybody's mind. Technology has improved;
11 performance has improved. It's still going to be
12 a really late day and maybe my great grandchildren
13 and yours will be going to school together, and
14 we'll still be looking out at the same number of
15 rigs.

16 PRESIDING MEMBER GEESMAN: And the
17 Chinese will have bought all the oil.

18 MR. SPARANO: There are other places in
19 the country, other offshore sites that seem to be
20 enriched with more resources. North of our
21 borders, and I know Commissioner Boyd has had the
22 privilege -- I have not -- which is to go up and
23 visit some of the sites where the tar sands and
24 the very heavy oil exist.

25 And I think, while that's not America,

1 it is Northern America, and it is an ally, and it
2 is someone, a country whose principles, whose
3 people, whose ideals seem more closely matched to
4 ours than most of the other folks that I think we
5 allude to when we talk about national security.

6 So I think there is some promise. But
7 the crude side's a challenge. No question about
8 it. Part of it is because you can't make up 30
9 years of slowing down in just a couple of pokes in
10 the ground.

11 PRESIDING MEMBER GEESMAN: Thank you.

12 MR. BOESEL: Mr. Chairman, could I
13 just --

14 PRESIDING MEMBER GEESMAN: Yeah.

15 MR. BOESEL: -- clarify my comment, just
16 for my friend, Joe. Is that I very much
17 appreciate and respect what the oil industry has
18 done, and the ability to provide us with much
19 cleaner oil than it used to be. And at a
20 relatively low price.

21 I just think that if we really want to
22 address all three of those factors, that going
23 forward we need to push as quickly as we can, as
24 hard as we can, toward these other alternatives.
25 And then I just don't see oil's ability to help us

1 address climate change, energy security and air
2 quality.

3 COMMISSIONER BOYD: I just want to wedge
4 in a comment here that I think the Air Board, even
5 when I was there, and the Energy Commission have,
6 for years, said that oil, petroleum products are
7 going to, by the sheer inertia in infrastructure,
8 are going to dominate the transportation fuel
9 scene for years to come.

10 But those of us who have been in
11 government for decades recognize it's like
12 changing the direction, I guess, of an old
13 aircraft carrier.

14 I mean if we don't start turning now to
15 look to that future, some of us feel that, you
16 know, we're really going to get caught short. So
17 there's going to be a difference of opinion.

18 To me, there's room for both. One is
19 just fixed there, and if we don't start pushing
20 hard now we're just not going to do it.

21 The other thing, somebody mentioned
22 hydrogen. We haven't talked about hydrogen.
23 Dennis Schuetzle had hydrogen on one of his
24 balloon charts; said he'd get to it, but he
25 didn't.

1 But I would have said hydrogen is a
2 given, you know. I mean it's, hydrogen in this
3 state from a policy standpoint, hydrogen is a
4 given. And I think what we're talking about here
5 is, you know, bridging the gap between where we
6 are today and when we can reliably utilize a
7 hydrogen highway.

8 And some of us feel that petroleum just
9 isn't going to be enough. And we're in a critical
10 situation. So, actually I feel there's room for
11 everybody. But if you don't punch Joe hard, why,
12 you know, we're just not going to move this thing,
13 so.

14 And one last thing, Joe, I'll give you
15 credit for being here today. I salute you --

16 (Laughter.)

17 COMMISSIONER BOYD: -- because you
18 probably knew you'd be somewhat of a punching bag
19 on the subject of alternative fuels. So, I
20 commend you for representing your industry ably,
21 frankly, here today. Even though we have somewhat
22 different objectives. I don't think they're as
23 far apart as some people think, but in any event.

24 MR. SPARANO: Thank you.

25 MR. KOEHLER: Neil Koehler with the

1 California Renewable Fuels Partnership. I think
2 I'll pick up just where Jim left off, on the need
3 to really start making decisions now, because it
4 is such a deep, intractable problem at some level.

5 And to me that is the greatest
6 challenge. Where are we as a state going to
7 muster the political will to deal with this issue.
8 I've been attending forums like this, and I
9 applaud the two agencies getting together. But
10 for ten years I've been coming to forums like this
11 and saying more or less the same thing.

12 And I can't say that we've seen, from a
13 state policy side, a whole lot of action, with all
14 due respect to, you know, a lot of good minds up
15 here today, and many that came before you. We're
16 a large state and there's a lot of difficulty in
17 moving the state and moving the policy, but we're
18 at the point, the signals are so clear in terms of
19 the consequences of the problem, both economically
20 and environmentally, that we just -- it's no more
21 time for talk. We really need some policies.

22 And I think that challenge is, no more -
23 - it's very well evidenced in ethanol. I mean the
24 most successful thing that the state has done on
25 alternative fuels is the substitution of MTBE with

1 ethanol. And I'd like to add that it wasn't the
2 state that did it, it was the --

3 PRESIDING MEMBER GEESMAN: I was going
4 to say, what credit do you attribute to the state
5 for that.

6 MR. KOEHLER: Yeah, none. It was over
7 the very very strong protestations of the state
8 government continuing after now two waiver
9 requests. You know, we're still hearing nonsense
10 about ethanol and its summertime use and somehow
11 being unsatisfactory for use in the summer, when
12 we have the cleanest air on record. When we have
13 ethanol selling at 70 cents to a \$1 less than the
14 price of gasoline; when we have companies risking
15 capital building ethanol plants.

16 And the first, as I said, the most
17 successful thing we've done on alternative fuels
18 was to bring 900 million gallons of ethanol to the
19 state's fuel supply.

20 The second most successful thing we
21 could do would be to bring another 4 percent by
22 way of 10 percent ethanol blends like the rest of
23 the nation does. It would absolutely improve air
24 quality; it would absolutely lower the cost to the
25 consumer; it would absolutely add to our fuel

1 supply.

2 And, you know, we're fiddling around
3 with models and studies instead of moving very
4 clearly in the direction, as Jay from the
5 Independent oil marketers said this morning, just
6 give us the flexibility to use ethanol. We have
7 no flexibility to use ethanol in the state. We're
8 locked in at a 5 percent. You can move a little
9 bit beyond the 77 as Valero has shown in Martinez.

10 But we really have a regulatory
11 framework, and frankly, a political obsession with
12 trying to limit ethanol's role in California that
13 has made it very difficult for us to move in the
14 absolutely logical step by way of using more
15 ethanol, and producing the ethanol in this state.

16 We will never build another hydrocarbon
17 refinery. We can build a biorefinery in every
18 state -- I mean in every county of the state. And
19 provide a lot of new incremental supply.

20 So, I really think it's when the
21 opportunities are so obvious, maybe this is the
22 time we will, in fairly short order, muster that
23 political will and do the very simple things
24 required to move us forward on this particular
25 issue.

1 It's not about a tradeoff of energy
2 security and air quality. We can not only have
3 both, but we can enhance both by using more
4 ethanol. There's nothing that 5.7 percent ethanol
5 does that 10 percent ethanol does not do better,
6 and 85 percent ethanol doesn't do better than
7 that, and 100 percent ethanol doesn't do better
8 than that.

9 That being said, ethanol is not going to
10 supply all of our liquid fuel needs. We will
11 continue to work very closely with Joe and his
12 industry. Obviously they are our customer base,
13 and we appreciate the amount of ethanol that they
14 use in this state. We feel that they could
15 benefit from the flexibility that would allow us
16 to simplify.

17 Because in conjunction with the comments
18 made about how we really have made all the
19 progress on the -- so much progress on the vehicle
20 technology, and it's really more about the fuels
21 and the flexibility and the cost. And that
22 arguing about the proverbial dance on the head of
23 the pin, it's really probably not doing much to
24 either add to or detract from air quality.

25 And so we should really be looking at,

1 you know, how do we diversify the supply; how do
2 we stretch it; how do we provide the economic
3 benefits that can accrue from producing some of
4 these new fuels. And from an air quality
5 standpoint, it's CO2 and it's climate change.

6 And, again, just as ethanol's been the
7 most successful thing we've done to diversify the
8 fuel slate, in the short run the most successful
9 thing we can do to deal with the climate change
10 issue is to substitute renewable fuels, or add to,
11 because we have an increasing demand.

12 So, I mean, Joe's right, it's not a
13 matter necessarily of taking away from the
14 hydrocarbon slate, but as we continue to increase
15 the demand for transportation fuels, it's a
16 tremendous opportunity to make sure at least that
17 new increment is coming from new fuels.

18 And that's where a 10 percent ethanol
19 blend can be very helpful. I think it would be
20 very sensible and rational on a concrete step here
21 to make sure that we modify our predictive model
22 in the regulations, and maybe, you know, as Dean
23 Simeroth has thrown out for discussion purposes at
24 workshops, you know, maybe we've moved beyond the
25 predictive model. Maybe we just come up with some

1 more simple parameters that the fuel needs to be a
2 minimum of this and a maximum of that. And
3 however you mix it together, refiner, that's, you
4 know, -- that, then, is the market doing its job.

5 And in that regard with ethanol it would
6 be, you know, the real flexibility would provide a
7 tremendous benefit to the state's consumers, was
8 that you have one CARBOB and to that CARBOB you
9 can add 5.7 percent to 10 percent, anything in
10 between.

11 Right now, you have to have a different
12 CARBOB for different levels of ethanol. The only
13 place in the country that this is true, I think in
14 today's world, and certainly tomorrow's world,
15 that it's very hard to argue that that's providing
16 some environmental benefit. And it certainly is a
17 huge constraint on the system to require that a
18 different base gasoline has to be used at these
19 different levels of ethanol.

20 CO2, in answer to that second question,
21 does California need more stringent motor fuel
22 formulations as it relates to CO2. Absolutely.
23 There should be no backsliding. No backsliding
24 would mean that we don't try to get waivers from
25 Clean Air Acts; we don't try to figure out how we

1 can use less ethanol in California. We lock that
2 in as this is the baseline. Because anything less
3 than the current ethanol use in California would
4 be backsliding on CO2. And how do we then provide
5 the opportunity to go up to 10 percent, move on to
6 E-85.

7 We've been trying to permit one E-85
8 pump in Fresno, California. And I think we're
9 starting to see some movement, but we have been
10 absolutely stopped. We've not been able to even
11 take one tank. We've got a willing station owner
12 in Fresno, California, that was willing to put E-
13 85 in the ground; sell it for about 70 cents less
14 than gasoline, provide a real true option to the
15 consumer. And we ran into a regulatory blockade
16 at the Air Resources Board and have been unable to
17 permit that one tank. To me, that is not --
18 there's something wrong with that picture.

19 You know, starting from anywhere I start
20 it's stop the talk and let's start the walk.
21 Because there's some pretty clear opportunities.
22 There's some pretty clear paths we can take to
23 make sure that we have a more secure energy
24 future; that we have a more diverse energy
25 portfolio.

1 I think performance standards around
2 that are critical. Fuel neutrality. If it's
3 really just business as usual, then that is the
4 hydrocarbon mandate. The fuel diversity and
5 portfolio standards, like with the analogy on the
6 electricity side where we have renewable fuel
7 targets. Fuel diversity targets, I think, is in
8 the best public policy interests of the state.

9 PRESIDING MEMBER GEESMAN: Why do you
10 think you've run into so much resistance from
11 state government?

12 MR. KOEHLER: I think it's old thinking
13 that somehow ethanol was what they do in the
14 Midwest and we don't do it out here. And I just,
15 I think the thinking is beginning to evolve, but
16 I've been at this for 20 years and asked that
17 question a lot.

18 It's a very hard question to answer.
19 But I think it was really in the early years when
20 it was maybe the power politics of Midwest ethanol
21 interests coming out to California. And when we
22 were in a position in those early years where we
23 produced more than all of the gasoline we needed,
24 it was somehow perceived as a threat to the native
25 industry, which was the refining industry.

1 And I honestly think that we got stuck
2 in that old paradigm. And the whole MTBE issue
3 then became another, which is now an old paradigm,
4 because it was we need to get MTBE out. And there
5 was sort of fear of the unknown and a legitimate
6 concern that ethanol would not be able to replace
7 MTBE in such a way that we would not disrupt fuel
8 supplies, and do it in an efficient and sort of
9 seamless manner. And so there was the fear of
10 that.

11 And so to successfully remove MTBE that
12 was really the rationale, not air quality, was to
13 ask for a waiver from the Clean Air Act so that we
14 could get rid of MTBE and have the flexibility to
15 not have to replace it all with ethanol. At the
16 time it would have required over half of the
17 ethanol produced in the United States.

18 So I think there was a legitimate
19 concern. We now know in retrospect that the
20 ethanol industry has doubled over the last four
21 years. That the transition from MTBE not only has
22 been seamless, but has resulted in a lower
23 production cost of gasoline due to the value that
24 ethanol brings to the refiner with appropriate
25 modifications of regulations we can even improve

1 upon that.

2 So I think that, you know, after it was
3 the, here come those Midwest guys; and then we had
4 MTBE. And it was, you know, here they come again,
5 and we just need to manage our own affairs. And I
6 really think we need to look forward. It's a new
7 paradigm.

8 Ethanol not only is here and we're
9 certainly benefitting from being able to
10 substitute ethanol from the Midwest for gasoline
11 and crude oil from the Mideast, but now we have
12 the opportunity to build a vibrant industry here.

13 So, I think we all collectively need to
14 not get stuck in some of the thinking of the past;
15 look at all the new realities of today; and move
16 forward in a very constructive way.

17 PRESIDING MEMBER GEESMAN: Thank you.

18 DEPUTY EXECUTIVE OFFICER SCHEIBLE: I'd
19 like to add in I think it's obvious that the Air
20 Resources Board and Mr. Koehler and some of the
21 groups that he represents haven't come to a
22 consensus on the issue of what the science is, and
23 what the policy ought to be.

24 And I don't think trying to debate it in
25 this forum -- we'll have our own forum to do that.

1 It's better -- just a conversation that we had
2 before in front of our Board when similar issues
3 came up, just to relay that the staff of the Air
4 Resources Board prides itself, and for 15 years
5 we've done the science as best it can be done.

6 And that's what's leading us. It's not
7 any policy or hidden agenda. And the success of
8 that effort, I think, is shown in the degree to
9 which air quality has improved with fuels and
10 California's investment in those fuels.

11 So, I'll put our record against
12 anybody's.

13 PRESIDING MEMBER GEESMAN: I think
14 that's a good point. I was looking, though,
15 yesterday at the General Accounting Office report
16 that Senator Boxer asked for on special gasoline
17 blends. And noted, it's a point that a lot of
18 others have made, but the National Research
19 Council, General Accounting Office and number of
20 other technical specialists have identified
21 concerns about the accuracy of emissions
22 estimates. And how the model results -- not our
23 models and not EPA's models, but really all of the
24 models necessarily comport with measured emissions
25 data.

1 And I realize it's hard to get accurate
2 measurements. It's hard to capture the influence
3 of meteorological influences. I don't think I'd
4 go as far as Neil or the ethanol industry does in
5 terms of generalizing from one year's experience
6 here in California in saying that that represents
7 what the long-term future is likely to look like
8 from the standpoint of meteorological influences.

9 But there is an ongoing fracture, I
10 think, in placing reliance on modeled results that
11 can't readily be replicated by field data. And
12 when you make those judgments, and they're, of
13 necessity, sweeping judgments, on ten vehicles, I
14 think the underpinnings of state policy are a
15 little shaky there.

16 So I recognize we have different
17 perspectives; the two agencies have different
18 missions. But I'm confident that we can work
19 together and try and come up with a more rational
20 policy.

21 COMMISSIONER BOYD: I'm forced to make
22 at least a couple comments based on another life I
23 lived once. And I have to agree with Mike, that
24 pre-MTBE, and I was gone by the time that fiasco
25 started, fortunately -- but pre-MTBE, the

1 decisions that were made about putting ethanol in
2 the gasoline of the day -- and I think it's
3 important to talk about the gasoline of then
4 versus gasoline of now -- the science, the best
5 science, the preponderance of science, maybe not
6 all the science, but the preponderance of science
7 at those points in time relative to the gasoline
8 at that point in time showed that if you got very
9 much ethanol -- you went beyond the very small
10 percentage of ethanol in your gasoline, your
11 evaporative index went out of sight.

12 And that was a concern. It really
13 didn't have anything to do with not liking to get
14 corn from the Midwest. And even though I still
15 have scars on my back from the debate about how
16 much oxygenate we should allow in our first-ever,
17 or second, in RFG-2, I think Senator Dole wore
18 some of the shoes that trampled on me.

19 But in any event, it wasn't politics.
20 It was the best science of the day. And I've been
21 away from it for awhile; science can change, does
22 change all the time. And I think we're all better
23 served to talk about from today forward and not
24 what happened in the past. And see what today's
25 science shows. I agree with Commissioner Geesman

1 on that point.

2 PRESIDING MEMBER GEESMAN: Allan, --

3 COMMISSIONER BOYD: Enough said.

4 PRESIDING MEMBER GEESMAN: -- talk to us
5 about today going forward.

6 MR. DUSAULT: Okay. Allan Dusault with
7 Sustainable Conservation. A number of speakers
8 have stole my thunder, but I have a little bit
9 left. And in some cases, lightning strikes twice
10 and in the case of biomethane it needs to.

11 Biomethane is something that has not
12 been well recognized or studied as a alternative
13 fuel; it's something we recently studied, John
14 Boesel --

15 COMMISSIONER BOYD: Allan, excuse me,
16 would you pull that microphone a little closer to
17 you. I'll be you some people are having trouble
18 hearing you.

19 MR. DUSAULT: It's an issue that we've
20 looked at, my organization, with Calstart and some
21 others. So biomethane is an alternative that
22 needs more, I think, appreciation. And we'll have
23 a report coming out probably the end of this
24 month, and maybe that will spur additional
25 interest. But I don't want that to go

1 unrecognized.

2 PRESIDING MEMBER GEESMAN: Would you
3 submit that for our docket when it becomes
4 available?

5 MR. DUSAULT: Sure. I think, again,
6 going back to the issue of barriers and
7 challenges, I think one of the biggest problems we
8 have is you have, a well established petroleum
9 industry makes it difficult for when you have a
10 new industry or a couple new industries trying to
11 come in and establish itself, that is a bioethanol
12 or a biodiesel industry, it is a difficult road to
13 go up.

14 But I think one of the biggest elements
15 that hasn't been recognized as part of that effort
16 is California does not now produce hardly any of
17 its own bioethanol or biodiesel. Almost all of
18 that comes in from the Midwest. There's a little
19 bit of ethanol produced, but not much.

20 And I think that's one of the biggest
21 problems, one of the biggest barriers. Because in
22 the Midwest agriculture is a very strong political
23 force, and it's been able to muster those forces
24 to get those certain midwestern states to promote
25 ethanol use and biodiesel use. And you look at

1 Minnesota, Illinois and other states, their
2 efforts have been rewarded with standards that
3 resulting in much greater ethanol and biodiesel
4 use.

5 So I think that's one of our challenges.
6 And I think that points to the need to engage
7 California agriculture to bring them into the
8 party, so to speak, so that they can partake in
9 the discussion and partake in the solutions.

10 Because I think California agriculture can provide
11 biofuels, both ethanol and biodiesel. And I think
12 engaging them would be important to this effort.

13 I think there's another issue, and it's
14 been touched on, but I think it bears emphasis
15 again. And that's the regulatory barrier. And
16 I've heard, you know, all the different sides in
17 this.

18 I work for a nonprofit environmental
19 group, and we work with the regulars quite
20 closely. And I, in a former life, was a
21 regulator, so I empathize with that position.

22 At the same time, now being in a
23 different role and seeing efforts made to get new
24 fuels, alternative fuels, into play, and the
25 difficulties that they have, my observation is it

1 is very difficult because the regulatory
2 structure, the way it's set up, does not engender
3 or does not facilitate introduction of new fuels.

4 And I'll give the example of -- and
5 let's assume that everything that ARB says about
6 the air emissions, evaporative emissions of the
7 NOx, whatever, the predictive model is perfectly
8 right. There's no flaw in it; it actually
9 represents exactly real world conditions. There's
10 still a problem.

11 And that problem is this: The way the
12 regulations work, and I think this is true of any
13 state, and California is no exception, is there's
14 something called regulatory sudden death. Where
15 you can have a fuel that has great properties on
16 PMs, on carbon monoxide, on VOCs and has greatly
17 reduced those emissions. But have one constituent
18 that has a nominal increase. And what that means
19 from a regulatory point of view is that fuel
20 really is going to have a very tough time coming
21 into the state.

22 Because the state is -- the regulators
23 are not judging the fuel based on its public
24 health impact. They're judging it based on
25 regulatory standard. And where you have any one

1 constituent that can, in a sense, put that fuel to
2 bed, that is make it difficult to come into the
3 fuel mix, that's particularly problematic.

4 And I think there may actually be
5 examples where you have fuels that have, just
6 arbitrary here, 100 units of environmental
7 benefit, and maybe five or ten public health
8 benefit, and five or ten of public health
9 liability, that fuel is at a disadvantage compared
10 to the status quo, which is petroleum.

11 And I think that's something that we
12 need to look at when we evaluate different
13 options. And it's not just the fact that one
14 constituent can make it very difficult, that is,
15 one pollutant. It's also that we're not -- and
16 this is again the way the regulatory agencies are
17 structured -- we're not looking at the big
18 picture. We're not looking at the full life
19 cycle.

20 So that if you have a fuel that, let's
21 say, is not quite as good as existing petroleum,
22 gasoline let's say, but there's a -- but it's
23 renewable and whatnot. But if you only look at
24 the vehicle, that is the vehicle is the emission
25 source, and there's an increase in some pollutant,

1 but if you don't also look at the refinery, the
2 production side where there may be much much
3 larger sources of pollution, then you're really
4 putting that fuel at a disadvantage.

5 And you're putting the public health at
6 risk, because if you can have overall
7 environmental benefit by adopting or encouraging a
8 fuel that, through its life cycle, has a much
9 better public health profile, that's something
10 that we really need to take a careful look at.

11 Because, as I've said before, lungs
12 don't differentiate source. So, if the source is
13 a refinery, even if, you know, the agency's told
14 to look at the vehicle alone, and I know they also
15 regulate the refineries, but for purposes of the
16 fuel choices, that is going to make it much more
17 difficult.

18 And I think unless we look at the bigger
19 picture, it's very very difficult to introduce new
20 fuels.

21 One final point on that is I think there
22 are solutions to the problems that have been
23 identified with respect to NOx or evaporative
24 emissions. You know, I'm not an air quality
25 expert, but when I go out and talk to the

1 different entrepreneurs working on this issue, and
2 I think many here may have met with some of those
3 entrepreneurs, the working, developing low NOx
4 diesel. In fact it's lower NOx emissions in some
5 cases, possibly, than CARB spec'd diesel.

6 There's people working on, you know,
7 addressing the evaporative emissions from the
8 ethanol. I think there's solutions there, but you
9 have to provide the environment where those
10 solutions can come to market. Because right now
11 it's very difficult to get those to market.

12 So I actually have some quick, four or
13 five recommendations I'll summarize. But I think
14 those are the important issues for me, is we have
15 to look at this more systematically. Unless, I'll
16 call it silo thinking, because I think that's what
17 permeates, unfortunately, regulatory agencies.
18 And it's not for lack of people's good will or
19 interest in helping the environment or the public
20 health. I think it's the way the system's
21 structured.

22 So, my first recommendation is to
23 encourage entrepreneurs. That is to provide
24 either funding or other types of incentives for
25 those entrepreneurs to bring new products to

1 market. It's oftentimes not large corporations.
2 Sometimes these are not deep pocket. In fact,
3 mostly they're not deep pockets, and they can use
4 help to get these things getting verified, or
5 certified, is very difficult in some cases. So
6 that's the first recommendation.

7 Another is to create a climate for
8 investing in the infrastructure necessary to get
9 biofuels going in this state. And right now, I
10 think Neil has made a good case that it probably
11 doesn't exist right now, that climate. And I
12 think there's a regulatory component, but there's
13 also reducing the risk for the investors. I think
14 that would go a long way toward addressing that
15 concern.

16 I think if we adopted a greenhouse gas
17 standard I think that could be very useful in
18 moving some of the biofuels toward adoption,
19 greater adoption.

20 And bringing agriculture in, as I
21 mentioned earlier. I think they could be a key
22 partner in helping to make this happen.

23 And I think providing -- serving in the
24 role as a mediator or really a facilitator with
25 the environmental community. The environmental

1 community is divided on some of these issues. You
2 know, you look at ethanol and you talk to five
3 environmentalists and you get five different
4 opinions, at least two, but certainly maybe more
5 than that. And part of the problem is the way
6 that the impacts are looked at.

7 And I think if there was some way to sit
8 down and say how do we evaluate the relevant
9 tradeoffs. If you're going to increase PM or
10 reduce PM and increase this other constituent,
11 what are the overall benefits. Is there a way to
12 quantify that so that we're making choices based
13 on public health and not just based on a
14 regulatory standard.

15 I know the regulatory standard is
16 important, but if there's a way we can least
17 provide the tools to evaluate what the tradeoffs
18 are so that we can be explicit and share the same
19 understanding. And then make decisions that are
20 based on a premise we can all agree on.

21 I'll stop there.

22 PRESIDING MEMBER GEESMAN: Thank you
23 very much. I'm going to ask if there are any
24 questions from people on the phone for members of
25 the panel. Questions from the audience for

1 members of the panel? I've got a stack of blue
2 cards that I'm going to start calling on, but I
3 want to give people that may have questions to the
4 panel an opportunity first.

5 COMMISSIONER BOYD: Excuse me, can I
6 make one comment that follows on Allan's
7 presentation. I need to ask Allan a question,
8 really.

9 I think you were talking about a well-
10 to-wheels analysis for everything, or the
11 equivalent thereof, were you not, Allan, when you
12 asked for looking at the whole system and the
13 costs thereof, and apply it to everything? I mean
14 I was trying to get it down to simple terms,
15 but --

16 MR. DUSAULT: Yeah, certainly well-to-
17 wheels life cycle analysis is --

18 COMMISSIONER BOYD: Right.

19 MR. DUSAULT: -- underpinning what I'm
20 saying. But I think it's even -- those can be
21 very difficult to do. In fact, you can disagree
22 on what the assumptions are.

23 But I think if you focus -- you may be
24 able to take, and without doing, you know, a one-
25 year study, but to sit down and just say, look,

1 what does a refinery emit, what is coming out of
2 the car, and what is a, you know, a Jack Daniels
3 plant emit, I'm being a little facetious here --
4 from ethanol versus, you know, what's coming out
5 of the car.

6 And there may be some back-of-the-
7 envelope stuff you can say, you know what, there's
8 an order of magnitude difference. And if we're
9 talking about that level of difference, then maybe
10 we should be, you know, rather than just looking
11 at each one of these sectors, combine that when we
12 do our assessments or our regulatory approach.

13 COMMISSIONER BOYD: Okay. I mean I
14 understand what you're saying. You're talking
15 about looking at the whole system, and I certainly
16 agree with you on that point.

17 The only point I wanted to make is that
18 I'm glad you brought up biogas. It didn't get a
19 lot -- it got some mention. And just the whole
20 idea of using biomass to make energy from in
21 various forms is something the state has struggled
22 with for years.

23 And one of the problems is exactly the
24 problem you've outlined. And that is we don't
25 look at the system and we don't price out the

1 whole system. And we don't look at the costs in
2 other parts of the system of dealing with the
3 materials and wastes or dumping them or burning
4 them or having them burn down our forests instead,
5 and et cetera, et cetera. So, I think your
6 point's a very good one.

7 The last comment, John, just quickly, is
8 we get a lot of talk, virtually no, just maybe one
9 reference today, to GTL. Maybe a couple. Joe
10 talked about the huge investment in GTL throughout
11 the world. He did comment properly that probably
12 not a drop of it's coming to this country.

13 And I just want to put that -- note
14 that. That's something this agency's been really
15 interested in, and I know we've talked to South
16 Coast ad nauseam and the ARB, about it. But it
17 doesn't seem to be, pardon the pun, catching fire.
18 And maybe it's the economics; maybe it's a lot of
19 things we've talked about today. It can't seem to
20 get its foot in the door, but there's a huge
21 investment worldwide and all the Qatar materials
22 going to Europe -- because Europe uses diesels
23 like crazy, and this is a diesel alternative.

24 So, just kind of note that now -- blue
25 cards.

1 PRESIDING MEMBER GEESMAN: And I'd ask
2 the panel to stay up here in case you've got any
3 questions for the speakers, or perhaps they'll
4 have some for you.

5 Frederick Tornatore. Clark Aganon.
6 Anna Halpern-Lande.

7 MS. HALPERN-LANDE: Good afternoon. My
8 name is Anna Halpern-Lande. And I'm speaking on
9 behalf of Environmental Entrepreneurs today, but I
10 think it's worth a mention that I'm a business
11 strategy consultant. I do some work in the
12 renewable energy and transport fuel sector. And I
13 also founded a group within the MIT Club of
14 Northern California called the Renewable Energy
15 and Clean Technology Program. We are interested
16 in fostering entrepreneurship in these two
17 industries bases. We run events; we also look at
18 other mechanisms for doing that, including
19 businessmen competitions, conferences and so on.

20 A word on E-2. It's a national
21 organization of businesspeople and professionals
22 who support good environmental policies based on
23 their economic merit. Our members have created
24 more than 800 companies, added 400,000 jobs to the
25 economy and currently within the membership base

1 manage \$20 billion in private equity assets.

2 We strongly advocate fuel
3 diversification. With oil refining capacity in
4 California at 97 percent, and with the high demand
5 for oil worldwide, and I just looked today at The
6 Wall Street Journal and saw mention of \$60.73 per
7 barrel, we must diversify our fuel in order to
8 meet our growing transportation needs.

9 Consumers are suffering from high oil
10 prices, in part because they have no choice at the
11 pump. And the business sector also faces
12 significant business continuity risk. Just a note
13 on that. In a recent conversation with a rancher,
14 he expressed dismay about the fact that when he
15 and his compatriots went to the pump they are
16 spending somewhere between \$120 to \$150 to fuel up
17 their very necessary four-wheel-drive vehicles.

18 States such as Nebraska, Iowa,
19 Minnesota, Illinois and North Dakota are the
20 largest producers of alternative fuels, ethanol.
21 California is the largest consumer nationally.
22 But it's not, you know, we barely are on the map
23 in terms of our production.

24 But it's not just the present state that
25 matters, but the future as well. What we do now

1 determines California's economic and agricultural
2 competitiveness in this area.

3 The ability to grow our own fuel will,
4 no pun intended, fuel our economic growth and
5 increase our economic security.

6 Fuel diversification, air pollution
7 control should work hand-in-hand. Displacing
8 petroleum, while maintaining or improving our air
9 quality standards, should be a priority for us.

10 We urge the ARB and the CEC to work closely
11 together and to build a holistic flexible fuel-
12 efficient model for insuring air quality which
13 uses multiple fuels.

14 Just a few things of particular concern.
15 One is that if you look at the latest data from
16 the flexible fuel vehicles, and you look at the
17 percentage of that fleet, that is, you know, 2005
18 models, 2004 models, 2003 models, you see that
19 it's declining.

20 I think we all feel that the flexible
21 fuel fleet is a critical asset to the state in
22 providing additional fuel options, and we would
23 like to see that line continue to go up. And, of
24 course, very few of the flexible fuel vehicles are
25 being used as intended.

1 So, this is, in large part, because
2 people who own the vehicles are not aware that
3 they can be used with E-85 or various other kinds
4 of ethanol blends. And because there's only one
5 public fueling station offering an ethanol blend
6 greater than 7.7 percent.

7 Tank and pump manufacturers need to be
8 encouraged to create E-85 compatible products and
9 certify them. One of the issues that I've heard a
10 lot today is the issue of the fact that there's no
11 certified equipment and that there's a tremendous
12 amount of difficulty in getting permits.

13 All the permits that are being given are
14 R&D permits, which are provisional. We have the
15 greatest respect for the ARB, and it's not, you
16 know, there may have been some reluctance within
17 the state around ethanol, but the fact of the
18 matter is there isn't any certified equipment.
19 And if there was, it would make it much more easy
20 for anyone to be able to fuel up and working with
21 an E-85 independent fuel retailer in Sacramento,
22 who would like to put in a pump. And, you know,
23 he immediately faces the question of how he's
24 going to get that equipment certified. He
25 shouldn't be the one having to do that. That

1 should be the pump and tank manufacturers. And to
2 my knowledge, none of them are actively pursuing
3 that.

4 So, well, I mean if you look at the
5 productions runs they'd be talking about, look at
6 Minnesota. You know, there are somewhere between
7 108 stations and maybe 120 now, since the last
8 time I spoke with them. And, you know, if you
9 have a replacement cycle of maybe tops, two years,
10 if there's greater degradation within E-85 blends,
11 then it's not very compelling to do a production
12 run for 120 nozzles.

13 So, I mean I think they need to
14 understand that this is really important to the
15 state, and if they want the state's other business
16 they should make this a priority and they should
17 work with the ARB very aggressively to come up
18 with a nozzle that meets the enhanced vapor
19 recovery standards so that we can be able to roll
20 this fuel out.

21 DEPUTY EXECUTIVE OFFICER SCHEIBLE: This
22 has been a constant problem with, as the systems
23 for both on-the-car or for vapor recovery, the
24 requirements have gotten more sophisticated, along
25 with the technology. And we've found that

1 insuring that the systems are constructed to
2 perform right throughout their lives is very
3 important. So it makes it expensive to certify
4 them.

5 Where there's an uncertain or small
6 market opportunity they do the economic
7 calculation and say, is this worth it, am I going
8 to have enough units so I can go through this
9 expense and time and be pretty sure I'm going to
10 get the money back.

11 And often the answer is, well, it's
12 pretty uncertain. So that makes it difficult.

13 PRESIDING MEMBER GEESMAN: That's what I
14 was driving at. If we have 250,000 FFVs in
15 California and 75 percent of them are owned by
16 members of the public, is that a sufficient
17 critical mass. You know, it's a big state. But
18 is it a sufficient critical mass to attract more
19 interest by the pump and tank manufacturers. Or
20 is it simply too small to be meaningful to them.

21 MS. HALPERN-LANDE: Well, I'm not in
22 that industry, so I can't directly answer that
23 question. Apparently it's not that compelling.
24 And I think if you look at other state examples,
25 Minnesota for example, the first 50 stations were

1 subsidized. And the way that they did that was
2 that they had a loan forgiveness program. They
3 helped defray the costs and then, you know, they
4 provided a loan. And as long as the fuel retailer
5 was pumping E-85 they had a year-by-year
6 forgiveness program. At the end of something like
7 five years the loan was forgiven. I guess the
8 public good having been met over that time.

9 And that program was extremely
10 successful. Once they got past, you know, the
11 initial 50, there was no longer a need for a
12 subsidized program.

13 I think just a quick win from the point
14 of view of this Commission and for the ARB would
15 just to fund the certification process. And then,
16 you know, I think we've heard from a variety of
17 fuel retailers and folks in the industry that
18 there's interest in putting these things in. So,
19 you know.

20 Just another quick note on this is that
21 if you have three tanks at your gas station and
22 you want to put in tanks, say the mid-grade one,
23 and make it into a E-85 tank, and then you have
24 the -- you're going to do dynamic blending at the
25 other pumps, at all the pumps, you may end up

1 having to replace four dispensers plus add in the
2 fourth pump with the, you know, fourth fueling
3 position for the E-85.

4 That's immediately a substantial cost.
5 Now, if you also have the burden of certification,
6 you know, that's even more substantial. And, you
7 know, depending on what the requirements are
8 around this, and I think they're still a little
9 bit unclear, to go through that process and find
10 the right kind of nozzle, is a big expense.

11 And I applaud the ARB's concern about
12 making sure that we need a standard. But we need
13 to find a way to make it also less expensive for
14 an individual retailer to go through this process.

15 PRESIDING MEMBER GEESMAN: Now, are the
16 retailers in Minnesota making any money --

17 MS. HALPERN-LANDE: I believe they are.

18 PRESIDING MEMBER GEESMAN: -- on E-85?

19 MS. HALPERN-LANDE: Yes.

20 PRESIDING MEMBER GEESMAN: Do you have
21 any material you could send us on the Minnesota
22 experience?

23 MS. HALPERN-LANDE: Yeah, I can.

24 PRESIDING MEMBER GEESMAN: It would be
25 appreciated.

1 MS. HALPERN-LANDE: So, along the lines
2 around the concern about the car fleet, car
3 manufacturers need to be encouraged. I don't know
4 why there's a dropoff in the number of flexible
5 fuel vehicles being sold in California. But I'm
6 dismayed to see it. And I would love for the
7 Commission and the ARB to find ways to encourage
8 car manufacturers to increase the proportion of
9 FFVs being sold in California if you choose to
10 mandate them as mandatory in the state, we won't
11 object at all.

12 COMMISSIONER BOYD: My guess is the only
13 reason there are any of these is for the CAFE
14 credit that they got for those cars. And I would
15 agree with whomever said that the public doesn't
16 know, I'll be you more than half the public
17 doesn't even know they're driving an FFV.

18 And if it is declining, and I don't know
19 that it is, I'll take your word for it, it's
20 probably that they've been able to meet their CAFE
21 quota by averaging in other parts of the fleet or
22 something. And so they don't have to go to the
23 slightly added expense of equipping a car to
24 tolerate ethanol at that amount.

25 But your point's still a good point, but

1 that's, I think, the dilemma.

2 MS. HALPERN-LANDE: Thank you,
3 Commissioner Boyd.

4 And finally, you know, the public needs
5 to be educated. If an ethanol or E-85 pump were
6 available, as has been mentioned by multiple
7 parties today, it would be cheaper than gasoline.
8 And that's even on a miles-driven basis.

9 Consumers should also have a choice of
10 engines, diesels, gas hybrids, diesel hybrids,
11 plug-in hybrids, potentially even an ethanol
12 hybrid would all be a great efficiency add to the
13 fleet and would stretch our oil further.

14 For example, car manufacturers are able
15 to now manufacture a low emissions diesel vehicle,
16 you know, one that would meet the ARB's
17 requirement, but they hesitate to because they're
18 not sure that the market or the climate here is
19 welcoming.

20 We urge the ARB and the CEC to work with
21 car manufacturers to welcome them and to encourage
22 them to bring these kinds of high efficiency
23 vehicles to market.

24 We also believe that the private sector
25 and the state should each be allowed to do what

1 they do best. While alternative fuels should be
2 given a preference over petroleum fuels -- I'm
3 sorry, Joe --

4 (Laughter.)

5 MS. HALPERN-LANDE: -- the state should
6 set overall goals for fuel diversification rather
7 than determine winners or losers. And on that I
8 do agree with you, Joe.

9 So, you know, essentially what we're
10 saying here is we, just to see what it would look
11 like, took the (inaudible) argon model and said,
12 what if you said 50 percent of the point is to
13 have fuels that are greenhouse gas neutral to what
14 we have now and 50 percent would be to displaced
15 petroleum. And you made an index and then you
16 rated every fuel based on that, what would you end
17 up with.

18 And you put, say, gasoline at -- well,
19 gasoline with ethanol would be slightly above
20 zero, and hydrogen from renewable sources would be
21 at 100, you know, you could then rate every fuel
22 and have a way -- and by the way, the (inaudible)
23 model does look from a well-to-wheels
24 perspective -- you would then have a way to decide
25 which fuels looked in which ways. And then you

1 could classify them based on how much; then the
2 other part of the 50 percent would be on how much
3 petroleum would be displaced, thus looking at
4 meeting the security concerns and so on.

5 This sort of a model would provide
6 needed regulatory certainty and stimulates private
7 sector to innovate and compete and find the most
8 cost effective solutions to achieve the goals that
9 the state would then set. Because once you had an
10 index like that you could actually evaluate the
11 total amount of fuel sold in the state, and say
12 this is where we're at right now. We want to move
13 it up. And you could then start moving the index
14 up.

15 We urge the Commission and the ARB to
16 take appropriate steps to offer consumers a choice
17 of fuels at the pump.

18 Any questions?

19 PRESIDING MEMBER GEESMAN: Thank you
20 very much, Anna.

21 Arthur Bullard.

22 MR. BULLARD: My name's Arthur Bullard,
23 with Biosphere Environmental Energy.

24 We started a company to deal with waste
25 biomass conversion to clean energy. Right now

1 we're focused on biodiesel. Our emphasis was to
2 replace Btu values of all petroleum products to
3 deal with supply and accessibility.

4 Right now biodiesel would be one of the
5 quickest alternate fuels to implement because the
6 infrastructure is in place for the fuel
7 distribution, and it can run in the existing
8 diesel engines.

9 There were some comments made about the
10 life cycle and the energy efficiency. I had some
11 things from some studies that I wanted to quote,
12 only because of that. The total fossil energy
13 efficiency ratio, which is the fuel energy divided
14 by the total fossil energy used in production, is
15 3.215 for biodiesel versus .833 percent for
16 diesel. So that means that the biodiesel yields
17 around 3.2 units of fuel product for every unit of
18 fossil energy consumed in the life cycle.

19 By contrast, petroleum diesel's life
20 cycle yields only .83 units of fuel per unit of
21 fossil energy use.

22 The overall life cycle emissions of
23 carbon dioxide from biodiesel are 78 percent lower
24 than overall carbon dioxide emissions from
25 petroleum diesel.

1 The overall life cycle emissions of
2 carbon monoxide from biodiesel are 35 percent
3 lower than from regular diesel. Biodiesel also
4 reduces bus tailpipe emissions of carbon monoxide
5 by 46 percent.

6 The overall life cycle emissions of
7 particulate matter from biodiesel are 32 percent
8 lower than overall particulate matter emissions
9 from diesel. Bus tailpipe emissions are 68
10 percent lower for biodiesel compared to petroleum
11 diesel.

12 The study also finds that biodiesel
13 reduces the total amount of particulate matter
14 soot in bus tailpipe exhaust by 83.6 percent. And
15 we're talking some very significant numbers.

16 If a true cost of using foreign oil were
17 imposed on a price of imported fuel, renewable
18 fuels such as biodiesel probably would be the most
19 viable option.

20 For instance, in 1996 it was estimated
21 that the military cost of securing foreign oil was
22 57 billion annually. Foreign tax credits account
23 for another estimate 4 billion annually. And
24 environmental costs were estimated at \$45 a
25 barrel.

1 For every billion dollars spent on
2 foreign oil America lost 10,000 to 25,000 jobs. I
3 mean we're talking some very significant
4 differences for incorporating and encouraging
5 alternative fuel development.

6 Another deal that was addressed when I
7 contacted a number of fleet managers is the cost
8 factors. When you're dealing with utilizing
9 existing technology and adding additives and
10 particulate traps and catalytic converters, you're
11 dealing versus buying new equipment for the
12 designated alternative fuel vehicles, it's
13 significantly less cost for them because you're
14 not replacing for new equipment; the maintenance
15 costs are about 40 percent less than the
16 designated CNG, which the ARB is targeting.

17 With the new technology that's now
18 available, which includes the particulate traps
19 and the catalytic converters and the additives,
20 the hybrid diesel is cleaner than a CNG vehicle in
21 all emission categories.

22 The more efficient fuel consumption is
23 it runs 17 to 28 percent more efficient, requiring
24 less fuel than CNG on a per-mile basis, which also
25 reduces the emissions.

1 Right now the ARB and the South Coast
2 Air Quality Management District is extremely
3 biased against any diesel use in public fleets
4 because they're evaluating this on the older
5 technology.

6 The rules that are being implemented
7 right now say that no public fleet manager can
8 replace a vehicle with any type of diesel engine.
9 I've talked to a number of fleet managers.

10 We're evaluating building a very large
11 biodiesel production facility in California. One
12 of the things that we wanted to do was evaluate
13 take-contracts to make sure that when we geared up
14 for such a large plant that we had no problem
15 placing this new surge of biodiesel that was going
16 to be put in the market.

17 In every instance when I talked with
18 fleet managers I was told that, we can't because
19 it's being outlawed in southern California. We
20 cannot replace any of our fleet vehicles with
21 anything related to diesel or biodiesel. Which
22 has come into a situation and valuation of the
23 actual production of new biodisel plants and the
24 jobs created.

25 There's a distinct disadvantage when the

1 ARB tries to designate one fuel over what we
2 believe is potentially a very beneficial alternate
3 fuel. Not just biodiesel, but a number of the
4 others. Because to my knowledge there's no new
5 technology that's ever been brought to market that
6 was already perfected. You start with something
7 that's a very good model and you continue to
8 improve. And that's exactly what ARB has done in
9 the petroleum industry, was various gas
10 reformulations.

11 We need the support to implement this
12 type of fuel. And develop and test to prove to
13 you that we can accomplish reasonable
14 environmental goals with emissions. And continue
15 to develop. That's exactly what's happened with
16 the diesel technology. In Europe, most of the
17 cars are starting to be manufactured towards
18 diesel because it's a more efficient fuel. That's
19 why the syn diesel is going to be going to Europe.

20 There are a number of new technology
21 vehicles that are being produced. As a matter of
22 fact, San Francisco just purchased 100 new hybrid
23 diesel buses because better efficiency, less
24 maintenance cost, and they met the emission
25 requirements.

1 General Motors is getting ready to
2 release a hybrid diesel SUV in mid 2006 I believe,
3 that is 45 percent more efficient than a gas
4 vehicle. And there are a number of other
5 technology innovations that are being implemented
6 in new vehicles that they want to bring to market.

7 Biodiesel could have the greatest impact
8 in the quickest manner of any alternative fuel
9 that's being discussed right now because the
10 infrastructure is in place to do this already.
11 It's simply a matter of delivering the supply.

12 And, again, we have been evaluating, trying
13 to accommodate what we believe should be the
14 demand.

15 I think there were some health issues
16 discussed also. And it's my understanding, based
17 on some information from the National Biodiesel
18 Board, that biodiesel's the only alternate fuel
19 that has been certified, tested and evaluated by
20 the federal government as a clean, health-neutral
21 fuel. It passed all the health requirement tests,
22 which is significantly, you know, a great impact
23 for an alternate fuel that's looking for a clean
24 fuel.

25 In addition to that, allowing this type

1 of technology to go forward it will create a
2 number of job opportunities, and not low paying
3 jobs, mid- and high paying jobs that could be
4 brought to this state. There are a lot of
5 opportunities that are not being allowed to occur
6 in this state because we believe there are some
7 regulations in place that are prohibiting this
8 type of alternate fuels and others to come
9 forward.

10 One of the concerns that we have is
11 trying to work something out with the ARB and the
12 South Coast Air Quality Management District that
13 gives us the opportunity to go forward. By
14 dealing with elimination of diesel vehicles in
15 public fleets, it's a significant barrier to bring
16 some of this technology forward.

17 That's all I have at this time.

18 PRESIDING MEMBER GEESMAN: Thank you
19 very much. My last blue card is Rick Margolin
20 from Energy Independence Now.

21 MR. MARGOLIN: Thank you for the
22 opportunity to speak. And I'd also like to
23 commend the Energy Commission for convening these
24 hearings. I'm originally from Colorado, and this
25 kind of stuff when I moved to California made me

1 quickly realize that this just doesn't really
2 happen in too many other states, so it's very
3 enlightening, and it's enlightening to see it
4 works in such a vibrant economy.

5 What I wanted to talk about is hydrogen.
6 It's already been talked about to some extent, so
7 I'd just like to touch on some of the things that
8 weren't talked about. So, hopefully this will be
9 shorter than I originally intended.

10 But when I looked at the notice for the
11 workshop I was actually quite surprised to see
12 that hydrogen was not listed as one of the
13 alternative fuels to be discussed here. And after
14 poking around I was given several reasons.

15 One was that the air quality impacts of
16 switching to hydrogen are obvious. Others told me
17 that hydrogen's already being addressed in other
18 forums, such as the hydrogen highway. And one of
19 the other reasons I was given is something that
20 I've heard quite a bit today, which is that
21 hydrogen is too far off. I think one analogy was
22 that it's the other side of the bridge, that it's
23 the future.

24 I would beg to differ with that a little
25 bit. Hydrogen, as was mentioned today, there are

1 vehicles on the road. There's almost 100
2 experimental vehicles driving around the State of
3 California right now. We have 15 hydrogen
4 stations in active operation today. We have
5 confirmed plans for 18 more new stations to come
6 up. And these are stations that are independent
7 of the hydrogen highway; these are stations where
8 plans were developed before the hydrogen highway
9 was launched and the blueprint plan was developed.
10 So there's significant momentum already in place.

11 Vehicles are coming out at a very, I
12 think, encouraging rate. For example, Daimler-
13 Chrysler has said that they were going to get 100
14 hydrogen fuel cell vehicles onto the road by the
15 end of 2005. Well, they've quietly exceeded that,
16 or they've quietly met that own self-imposed quota
17 before the end of the year. So that's
18 encouraging.

19 General Motors has said on numerous
20 occasions that by 2010 they will achieve
21 commercialization. And I think anybody who read a
22 national paper last week would have seen that
23 Honda is now leasing a vehicle. They've made
24 their SCX available for lease. They've placed it
25 into the hands of a family down in Los Angeles for

1 everyday trials. So that's in addition to all the
2 vehicles that are within the UC system, City of
3 L.A., City of San Francisco and so forth.

4 So, these vehicles are on the road.
5 They're out of -- you know, they're still in the
6 lab, but many of them are out of the lab in real
7 world conditions. And though they are not
8 necessarily meeting the driving specs that we've
9 all become accustomed to, they are meeting the
10 needs that we have. For example, as was mentioned
11 earlier, that the commutes of the average
12 California worker is about 20 miles. These are
13 meeting -- these are getting up to highway speeds;
14 these are meeting acceleration needs; these are
15 capable of getting people to and from work, home,
16 school, groceries, et cetera. So, they're out
17 there.

18 In addition to these vehicles and
19 stations that are out there on the road, there are
20 several initiatives. I'm sure we're all fairly
21 familiar with the hydrogen highway by now.
22 There's been some great progress going on there.

23 SB-250 has passed out of the Senate,
24 passed out of several committees. It's now moving
25 quite rapidly with bipartisan support through the

1 Assembly. And just yesterday the Assembly
2 approved \$6.5 billion -- or I'm sorry, million
3 dollars in funding for the hydrogen highway.
4 Three stations and it's funding for three stations
5 and it's put vehicles in place.

6 The AQMD, South Coast AQMD has been one
7 of the worldwide leaders in deploying stations and
8 vehicles. They're working on converting some
9 Priuses to run on hydrogen. The Department of
10 Energy has a fairly comprehensive program. And
11 internationally, there's programs going on in
12 Japan, India, European Union, Iceland, Canada and
13 so forth.

14 So, the other thing that's mentioned,
15 and the reason I think hydrogen should be in this
16 dialogue is that it's a bridging -- or it takes
17 advantage of all these other technologies, which
18 have been called bridging technologies. So
19 therefore I think we can consider hydrogen an
20 inclusionary technology. We'll be able to
21 incorporate gaseous fuels technologies, hybrids,
22 electric vehicle technology.

23 So, there's a synthesis amongst all the
24 fuels that were talked about today and hydrogen.
25 So omitting hydrogen from that discussion I think

1 would be an error because hydrogen will not only
2 be able to build in the success of these
3 technologies, but incorporate all them, as well.

4 The other thing that I wanted to mention
5 is hydrogen obviously has compatibility with not
6 just the technologies, but it has compatibility
7 with the state's environmental regulations, the
8 greenhouse gas regs, criteria pollutant regs, the
9 growth of renewables. It's able to piggyback on
10 all of those.

11 And then finally what I'd like to --
12 well, I've got two points to wrap up. One is that
13 Commissioner Boyd mentioned that -- and I'm
14 paraphrasing here, so excuse me if I get this
15 wrong, but basically that it's a given that
16 hydrogen is coming. Sort of, it's a slam-dunk.
17 And while as a hydrogen advocate I am pleased to
18 hear that, I do want to caution against that.

19 I would like to see a thorough analysis
20 of hydrogen within this context, because there are
21 right ways to do hydrogen and there are wrong ways
22 to do hydrogen.

23 And I think if we consider that hydrogen
24 is a given, that it's coming, I think that lets
25 our guard down. And therefore, if there are

1 proposed methods for producing hydrogen or
2 consuming hydrogen that do not meet the state's
3 goals for economic and environmental and social
4 security goals, I think we could run into some
5 very serious opposition.

6 And I think within the context of the
7 hydrogen highway we've already seen that, where
8 just letting our guard down just a little bit
9 quickly puts us on our heels.

10 So, basically everything else I was
11 going to talk about was touched on here, so just
12 in closing I would really like to encourage this
13 panel to strongly consider discussing, analyzing
14 and including hydrogen in this process.

15 Thank you.

16 COMMISSIONER BOYD: If I might comment
17 on my comment. I guess because nobody prior to
18 you had mentioned it, but it had shown up on one
19 speaker's balloon charts, but not get mentioned, I
20 said what I said to mean from a policy standpoint
21 hydrogen has been embraced by this Administration.

22 Both the agencies represented up here
23 are deeply involved in the preparation of the
24 blueprint, the implementation of the blueprint.
25 For years have served with or on the fuel cell

1 partnership effort, et cetera, et cetera.

2 So, I said what I said to not -- so
3 folks who were interested in hydrogen didn't think
4 it wasn't being addressed. And my analogy to
5 between now and then, I don't think it's a slam-
6 dunk, by any stretch of the imagination. And your
7 comments about constantly checking progress are
8 certainly valid. And I assume those in charge of
9 that program are cognizant of that, as well.

10 But no matter how, you know, how fast we
11 move in that direction, some of us feel it's going
12 to be awhile. And looking at today and tomorrow
13 there is the gap that I referenced that I'm trying
14 to bridge in my mind, if not physically, with
15 other options in the meantime.

16 The good news for hydrogen is it's the
17 only alternative fuel, if you want to deem it
18 that, where the oil companies have sat at the
19 table consistently for years to be part of the
20 process of debating the future of it. Every other
21 alternative fuel I've ever had an experience with
22 has not been openly embraced by the oil companies,
23 and thus has had an uphill struggle.

24 And the moderately successful methanol
25 program we had in the state years and years ago,

1 and the halfway decent infrastructure that was
2 provided, was provided with incentives, money from
3 this agency, I believe, and negotiations with the
4 oil company. And frankly, I think the ARB clubbed
5 some oil companies into building stations by
6 offering the chance to pay healthy fines for some
7 violations somewhere, or to build an ethanol
8 station.

9 And I'm not picking on, I'm just
10 pointing out that hydrogen is one area where even
11 their executives are looking way over the horizon
12 to see that they'll be in that business.

13 So I think it's had a pretty healthy
14 kickstart. And a lot of these others have been
15 around a long time and need some help. And I
16 think that's maybe why some of them we tended to
17 concentrate on that today, rather than get into
18 the debates about hydrogen.

19 It was referenced earlier today that
20 this agency's got a research project to deal with
21 roadmaps relative to all the fuels, and certainly
22 hydrogen is one of the fuels on that roadmap from
23 what I remember of the description of the research
24 projects. So, anyway, a few comments.

25 PRESIDING MEMBER GEESMAN: Thank you.

1 MR. MARGOLIN: Thank you.

2 PRESIDING MEMBER GEESMAN: I wanted to
3 give Henry Hogo an opportunity to respond to some
4 of the earlier comments about South Coast rules
5 and diesel hybrids in transit fleets.

6 MR. HOGO: Thank you, Commissioner
7 Geesman. I think you heard some very -- I've
8 heard some very interesting testimony today. And
9 being with the primary principal -- I'm sorry --
10 principal staff on the fleet rules, the fleet
11 rules are basically a purchasing set of
12 requirements.

13 And fleet operators can use alternative
14 fuels and diesel fuel; biodiesel fuel can be used.
15 We have said this to the industry; we said it to
16 fleet operators who would come to us to ask if
17 they can use biodiesel in their fleets. That's
18 not an issue to us.

19 We said to them, as long as it's
20 certified by ARB as a fuel to be used in
21 California, we're fine with it. And that means
22 not having the issue with the NOx.

23 And if you look at the NOx issue, we saw
24 2 percent with B-20, and up to 10 percent with a
25 B-100. And you see the benefits from PM, which is

1 50 to 60 percent.

2 If you put those numbers in absolute
3 terms, the amount of emissions between NOx and PM
4 is on the order of 20 times more NOx than PM. So
5 if you put it in mass term, the small percentage
6 increase in NOx, which eventually leads to PM,
7 will overwhelm the benefits of the PM emissions
8 from biodiesel.

9 Putting that aside, if it's a fuel
10 that's certified for use in California, we're fine
11 with it. Because we know there's benefit in terms
12 of reducing PM. And we said to fleet operators
13 over the last five years when these rules have
14 been in place, that they can use biodiesel in
15 their fleets, for their existing fleets. Because
16 the number of existing diesel vehicles, older
17 ones, are more than the number that approaches in
18 any fleet.

19 So we strongly encourage the use of any
20 fuel that will have environmental benefits. So
21 that's not an issue to us. And we said that to
22 the industry and we said it to fleet operators.

23 Industries have come to us asking if
24 biodiesel can be a rule-compliant fuel. And we
25 said, well, how can you guarantee to us that the

1 fleet operator is going to use biodiesel 100
2 percent of the time. And we have not gotten any
3 comments back for over five years now on that
4 issue. Because it is a compliance issue, not only
5 -- there is a benefit, we recognize that, but it's
6 a compliance issue.

7 Relative to air quality and Commissioner
8 Geesman, you're right, that you can't just look at
9 one year's worth of meteorology and say that
10 improvements will continue.

11 When we look at trends we usually take a
12 three-year running average of the ozone values.
13 And that takes out the meteorological effects year
14 to year.

15 And when you look back at what Joe
16 Norbeck presented earlier, that trend is actually
17 leveling off since about the beginning of the year
18 2000. So if you average those years, it looks
19 like it's flattening out.

20 And that was really an issue when it
21 came up to our last planning cycle, especially
22 with the Air Resources Board, what amount of
23 emission reductions are going to be needed.

24 So, really to get there, we really have
25 what we call a zero sum gain. That means that we

1 can't afford to have an increase in a precursor
2 emission that will cause us a delay in meeting air
3 quality standards. So we want to insure that all
4 technologies reduce their emissions and don't
5 exacerbate the problem. And that's the concern we
6 have.

7 If the technologies can lead to
8 mitigation of the problem, for instance the
9 ethanol permeation. We know the newer vehicles
10 probably don't have this permeation effect. But
11 the thousands of vehicles that are still out
12 there, how do you handle those vehicles. So
13 that's a concern I believe all our agencies have
14 relative to ethanol.

15 Relative to biodiesel, I think the work
16 that's being done at the Air Resources Board in
17 looking at having the trap manufacturers verify
18 the fuel with their systems is a very good start.
19 And we look forward to having, not only particular
20 trap manufacturers, but actually NOx control
21 device manufacturers verify biodiesel. And that
22 would help enable biodiesel use in the fleet.

23 I want to conclude that we did put in
24 some written comments to you. And I hope you take
25 a close look at it. We encourage the use of plug-

1 in hybrids. We have three projects going on that
2 will be demonstrating plug-in hybrids, increased
3 battery capacity, and also converting a Prius to
4 run as a plug-in configuration.

5 As was mentioned, we are converting
6 Priuses to run on hydrogen. So if you can imagine
7 a hydrogen hybrid plug-in, a true zero. And in
8 the short term you can have a hydrogen vehicle for
9 the plug-in, and you get the experience. You
10 don't have too many fueling stations. So now you
11 see the benefits of having that as a transition.

12 So I beg to differ with the person who
13 said that plug-in hybrids are not a transition to
14 the hydrogen economy. So we have those things.

15 Gas-to-liquids, we've been working on
16 those for years. And we know that that's the
17 benefit, it's the economics that's really driving
18 that one.

19 And we're actually doing projects with
20 the diesel engine manufacturers to look at how
21 they can bring forward the diesel engines, meeting
22 a 2010 standard by 2007. So we have two projects
23 going on there.

24 So, again, we look forward to working
25 very closely with the Commission. We always work

1 very closely with the Air Resources Board on all
2 these issues. And we've been working very closely
3 with Department of Energy to bring these new
4 technologies forward.

5 PRESIDING MEMBER GEESMAN: Yeah, I guess
6 the one thing that I'd say as it relates to
7 attainment and permeation, was EPA concluded that
8 the waiver issue would not have any impact on
9 achieving attainment, either in delaying
10 attainment or preventing it.

11 And I think that one of the difficulties
12 that our regulatory system creates, we've got all
13 these jurisdictional seams. A seam between you
14 and the ARB; a seam between the ARB and the
15 federal government. I kind of remember Willie
16 Sutton's philosophy of why did he rob banks; it
17 was because that's where all the money was.

18 Seems to me that there are certain
19 opportunities or targets of opportunities that if
20 we didn't have all of these seams we would be
21 pursuing with more vigor. The Port of Los Angeles,
22 Port of Long Beach, some of the railroad
23 facilities in southern California, we ought to be
24 trying to get some of the older vehicles off the
25 road with a lot more aggressiveness.

1 And I suspect there's a lot more payoff
2 there than prescribing broad general standards,
3 attempting to affect all 24.5 million personal
4 vehicles on the road. And I think that's one of
5 the tensions that probably separates your mission
6 from our mission.

7 MR. HOGO: Our agencies have worked very
8 closely together when we put our plans together,
9 as you know. And we really try to balance the
10 state's needs in having aggressive air
11 regulations. And we always accommodate the growth
12 in the state demographics, economy, before we take
13 into account what we need to achieve clean air.

14 And we still continue that philosophy,
15 that we want to see a healthy economy.

16 I think when you look at what the
17 businesses in southern California have been saying
18 over the last few years is that they've done
19 everything they can. It really has to focus on
20 mobile sources.

21 And when we look at our regulations and
22 what we consider as significant emissions control
23 measure is actually .3 tons per day. So, if you
24 can -- if you think about the amount of emissions
25 we're talking about with the lowest estimate of

1 ethanol permeation, which is about 10 tons per
2 day, we're talking a 30 times lower number, which
3 we consider significant; and which the business
4 community would say is significant if we were to
5 go forward with a regulation.

6 PRESIDING MEMBER GEESMAN: Well, I
7 appreciate your input. Let me go --

8 UNIDENTIFIED SPEAKER: May I ask for
9 clarification on --

10 PRESIDING MEMBER GEESMAN: I'd really
11 rather go to the phones and see if anybody else
12 has any comments that --

13 UNIDENTIFIED SPEAKER: Well, he's saying
14 something exactly opposite from what I've been
15 told by the ARB.

16 PRESIDING MEMBER GEESMAN: And I'd
17 suggest that you handle it offline.

18 UNIDENTIFIED SPEAKER: Okay.

19 PRESIDING MEMBER GEESMAN: Is there
20 anyone on the phone that cares to make a comment?
21 Anybody else in the audience cares to make a
22 comment? Yes, sir.

23 MR. ANAIR: Hi. I'm Don Anair with the
24 Union of Concerned Scientists. Just some brief
25 comments after the discussion this afternoon.

1 Just wanted to say we're very supportive
2 of the Energy Commission's efforts in reducing
3 petroleum demand in California, and increasing use
4 of alternative fuels. And we're also very
5 encouraged that ARB is working with the CEC in
6 this endeavor.

7 Just a couple comments, and they've been
8 brought up today already, as well, so I won't
9 elaborate too much.

10 MS. WONG: Yes, -- you hear me --

11 PRESIDING MEMBER GEESMAN: Just hold on,
12 ma'am, we'll be to you in a couple of minutes.

13 MS. WONG: Okay.

14 MR. ANAIR: The need to consider life
15 cycle analysis for all alternative fuels that are
16 being considered in the effort, including electric
17 technology and hydrogen. I think it is important
18 that hydrogen is evaluated, along with all these
19 other alternative fuels, as has been mentioned
20 earlier in some comments.

21 And in the life cycle analysis it should
22 include petroleum reduction potential, greenhouse
23 gas and global warming, global climate change
24 potential, and air quality and water quality
25 impacts on the life cycle analysis.

1 And just a comment on the science. You
2 know, I think ARB has been, over the years, an
3 agency that has really built up a lot of
4 credibility in terms of air quality science and
5 basing the policies on rigorous scientific
6 analysis, peer reviewed work. And that must
7 continue, and it has to continue as well in
8 choosing alternative fuels policies in California.

9 And I just want to make sure that that
10 is emphasized in this process, because we
11 shouldn't be experimenting with public health.
12 And that's what it comes down to when we're
13 considering alternative fuels and their impacts on
14 air quality.

15 And finally, a lot of the discussion
16 today has been focused on onroad technologies and
17 alternative fuels. And in Mike Jackson's
18 presentation he did mention offroad as being
19 possibly low-hanging fruit. And I also wanted to
20 comment on the offroad sector that it's also an
21 area that's been lagging behind in emission
22 standards. So there is a possibility to get both
23 air quality gains and petroleum reduction in the
24 offroad sector. And I think that should be looked
25 at pretty closely.

1 And that's it. Thank you.

2 PRESIDING MEMBER GEESMAN: Thank you.

3 And now to the phones.

4 MS. WONG: Yes. Hello.

5 PRESIDING MEMBER GEESMAN: Go right
6 ahead.

7 MS. WONG: This is Yolanda Wong, and I'm
8 a Commissioner with the City of Berkeley. I have
9 a couple of points that I would like to make.

10 One is that we definitely support fuel
11 diversification. I think it's clear from our
12 analysis that there is going to be no one fuel
13 that's going to be able to satisfy our
14 transportation fuel demand. And so
15 diversification is going to be important.

16 This was definitely driven home when we
17 participated in some of the workshops that were
18 held during the World Environmental -- event in
19 San Francisco a few weeks ago. And in listening
20 to some members from the Brazil petroleum or
21 vehicle fuel industry, what they were describing
22 in terms of the path that Brazil took into
23 developing or really expanding the market for flex
24 fuel, was that fact that it was consumer demand
25 that drove it. And that was, in part, through the

1 instability of the fuel supply in Brazil.

2 And given the way the world market for
3 petroleum is going, and supply, and the
4 competition that we have from China and other
5 countries, it seems to me that we could face the
6 same problem of fuel instability. And so having a
7 diversified supply, as well as flex fuel vehicles,
8 may be very important.

9 The other thing I wanted to comment on
10 is I really understand many environmentalists and
11 the American Lung Association who don't want any
12 compromise in terms of emission standards.

13 But on the other hand I also understand
14 when people are talking about what will it take to
15 develop alternative fuels, and having really
16 looked at the impediment to alternative fuels and
17 the question of fuel neutral policies, I think the
18 analogy that makes the most sense to me is this.

19 On one hand you have the petroleum
20 industry, which is the mature industry; it has a
21 lot of money; it has an enormous R&D budget; and
22 it has been able to successfully meet the
23 challenges placed upon it by the regulation of
24 vehicle emissions.

25 On the other hand you have the

1 alternative fuels industries, which I would
2 characterize as toddlers; they're barely walking.
3 And if you want to have a fuel neutral policy you
4 can't demand of the toddlers the same standard
5 that you demand of the mature industry. It just
6 isn't fair.

7 So when I believe it was Thomas Friedman
8 or Randal Friedman from the Department of Energy
9 was speaking earlier about SB-975, the City of
10 Berkeley has, in fact, forwarded a proposed
11 amendment to SB-975 asking that biodiesel have a
12 limited time waiver of some of the air quality
13 emissions in order so that you can develop the
14 market, get onroad real time testing, and then
15 make the demands that the equipment, the
16 technology and the fuel improve. And I think
17 that's the way to develop it.

18 I think that when people are thinking
19 alternative fuels and the fact that biodiesel has
20 this NOx problem, I don't think the approach
21 should be that once you permit biodiesel at the
22 emission rate that it is, that it should be
23 allowed to do that forever. I think that there
24 can be time limits in order that the market can be
25 developed. And then improvements made.

1 Some of the comments I'm going to make
2 now actually represent my own; they have not been
3 officially adopted by the City of Berkeley. And
4 what I would like to see ARB do, and I'd like to
5 see the Department of Energy consider doing, are
6 incentives to get people out of vehicles.

7 If you look at rush-hour traffic, and if
8 you can get even 10 percent of those vehicles to
9 double up and be double occupancy vehicles, you
10 automatically immediately get a 10 percent
11 reduction in pollution emissions. And it's a
12 complete reduction. There's nothing else coming
13 out, because there's two people in a car versus
14 one person in a car.

15 And I know that we've gone round and
16 round in many discussions I've been a participant
17 to where people say that'll never happen.
18 Americans will never get out of the car.

19 Well, in the '60s when I was a child,
20 every adult that I knew smoked cigarettes. And in
21 a very short period of time through public
22 education we were able to turn that around. We
23 were able to turn drunk driving around. I think
24 there's many things that we've been able to turn
25 around with appropriate marketing and appropriate

1 public education, which has not been applied to
2 getting people out of cars.

3 And one speaker earlier had talked about
4 the fact that zero emissions vehicles can drive in
5 carpool lanes, and yet there's no signage, and
6 that's not public, that's not widely known. But I
7 think that there needs to be funds expended to
8 encourage people to drive less, or to buddy up and
9 drive together. I think that that would be a wise
10 use of money in terms of air quality improvement
11 and reducing the demand side.

12 The other issue I'd like to raise is
13 something that we've been talking about. And I
14 understand the CAFE standards; I understand the
15 federal preemption and that we, as Californians,
16 cannot step into that. But I'm wondering whether
17 anyone has explored ways to get around that so
18 that we can achieve similar goals without
19 mandating fuel efficiency.

20 And one of the concepts that we had that
21 we were thinking about or discussing is whether or
22 not it's possible to have vehicle registration
23 fees based upon efficiency. Can they be based
24 upon weight. Can they be based upon what the
25 total emissions would be in terms of vehicle miles

1 traveled, rather than just a time standard in
2 terms of how much the vehicle is emitting.

3 Because if you get a vehicle that's
4 getting 100 miles to the gallon, even if in 15
5 minutes that vehicle is polluting as much as
6 something else, in terms of the mileage that
7 you're getting, the vehicle miles, it's much less.
8 It's a different qualitative evaluation.

9 And if you can do it in terms of
10 registration costs, just the way we taxed
11 cigarettes, then those funds can then be applied
12 to development of alternative fuels, or as that
13 other person was talking about, subsidizing E-85
14 pumps at stations, or other things that need
15 subsidy in order to get off the ground.

16 And the last thing in terms of fuel
17 neutral I think it's really important for you to
18 consider is the history of what happened with beta
19 and VHS. And I think every engineer will say,
20 yes, beta was better technology. Sony had better
21 technology. But, VHS won. And the reason why VHS
22 prevailed is because it was made much more
23 publicly accessible, it was shared and it took
24 off.

25 And I think with the example of the way

1 the internet has taken off, it's really been
2 driven by the sharewares, by publicly accessible
3 technology that fueled that growth.

4 And I think that if there's going to be
5 anything the two departments can do is to make
6 technology more publicly accessible. And through
7 that, develop the market.

8 So those are my comments. Thank you
9 very much for listening.

10 PRESIDING MEMBER GEESMAN: Thank you.
11 Any other comments on the phone? Anybody from the
12 audience?

13 Any last thoughts by members of the
14 panel? My colleagues have anything to get off
15 their chests?

16 I want to thank you all for hanging with
17 us for a very long day, but I think a very
18 information-rich day. Again, it's been very
19 helpful to us.

20 We'll be adjourned.

21 (Whereupon, at 5:32 p.m., the workshop
22 was adjourned.)

23 --o0o--
24
25

CERTIFICATE OF REPORTER

I, PETER PETTY, an Electronic Reporter,
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